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ABSTRACT

Consideration is given to--(1) planning the school building to fit the educational program, (2) general findings and recommendations for use of the guidelines, and (3) basic considerations in planning a new school building. Guidelines are then presented for space and equipment requirements for use in the planning of new elementary, junior, and senior high school buildings. Cost factors for new schools and additions by architectural region are also presented. (FS)

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GUIDELINES FOR SCHOOL BUILDING PLANNING

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

The General Assembly of Ohio has, by law, charged the State Board of Education with the duty of providing leadership in the development of a sound, comprehensive system of schools. Elementary and high school standards have been revised and upgraded. The Board has also revised the standards for teacher training and certification and enacted regulations for such programs as special education, transportation, and vocational education.

A start has been made in providing consultant service in the area of school building planning. This service grew out of the experience of the Board and the Department in administering the various appropriations for state assistance in school building construction. We believe that a worthwhile contribution can now be made by listing space and equipment needs and providing guidelines to help the district boards of education and administrators to determine what facilities are basic needs and what facilities are desirable additions.

To develop this outline I appointed a representative staff committee and asked them to develop guidelines for space and equipment requirements for use in the planning of new school buildings under the State Assistance Program and for use by the Department School Building Consultant Service in advising in regard to school building planning that is not subject to the standards established where state aid is involved. This Committee was instructed to seek advice and opinion from other members of the staff, university and college people, public school administrators, architects and the U. S. Office of Education.

These guidelines are suggestions for school building planning and are not a set of adopted standards or regulations. It is our hope that boards of education and their staffs will find them useful in developing plans that will provide the proper space and equipment for their programs of instruction.

E. E. Holt,
Superintendent of Public Instruction

April, 1964

CHAPTER I

PLANNING THE SCHOOL BUILDING TO FIT THE EDUCATIONAL PROGRAM

A. THE BOARD OF EDUCATION AND THE EDUCATIONAL SPECIFICATIONS

The district board of education, regardless of the size of the school district, has the direct responsibility of determining what educational facilities are needed and to what extent these facilities can be provided within the funds available. During the educational specification planning stage the superintendent or executive head and his staff should assume the leadership responsibility for developing proposals to be considered by the board. He should provide for the bringing together of ideas and opinions from the faculty, the community, the universities, other school districts who have had building programs, the State Department of Education, health authorities and the architect. In a local district the county superintendent and his staff should be involved in the planning from the start.

Careful observance of a division of responsibilities during the preparation of educational specifications will avoid misunderstandings. The architect, and his engineers, if an architect has been selected, should serve in a consultant capacity. The architect is the authority on what is possible and feasible in construction.

The basic needs and desirable features of the educational specifications should be presented to the board of education in detail with recommendations as to priorities. The board of education should question and discuss the proposals and make the judgement as to the needs and priorities. With approval of the needs and priorities the superintendent, executive head or appropriate staff members should prepare detailed educational specifications for final board action and presentation to the architect and his staff.

With the approval of the educational specifications and the employment of an architectural firm the professional roles change. The architect should assume the leadership and the educators should become the consultants. The board of education renders the final decision.

It is recommended that the plans and estimates of cost be submitted to the board of education at three stages; (1) the preliminary drawings which are basically space allocations and arrangements developed from the educational specifications,

(2) the design development drawings and specifications which show the principal construction details as well as materials, finishes and major equipment items, and (3) the final working drawings and specifications. The administrators should be kept fully informed and be prepared to analyze the plans for the board of education at each of the submissions.

The cooperative approach outlined above is the preferred way to plan school buildings. The three way division of responsibility allows the lay board of education to make final decisions, the educators to fit the building to the school program and the architect to design with a knowledge of just what is needed and why it is needed. Poor plans and costly change orders go with any by-passing of educational specifications.

B. THE ARCHITECT

The selection of the architect and the proper utilization of his skills are most important steps in building. Professional services are being purchased and the qualifications of the individual or firm are the key to a good choice. Professional training and experience outweigh personality and salesmanship. It is suggested that a careful check be made on his education, standing in the profession, buildings planned, his record in providing adequate construction supervision, degree of satisfaction on previous projects and his willingness to work with board and staff.

C. PLANNING AIDS

Planning the educational program and the development of the educational specifications are beyond the scope of this publication. Many of our universities and colleges are prepared to provide aid in depth for this phase of building planning. Professional consultant service is also available from some architectural and specialized consultant firms.

There are a number of publications that deal with school building planning. One of the generally accepted studies is the "Guide For Planning School Plants", 1958, published by the National Council on Schoolhouse Construction, $3.00, W. D. McChorkin, Peabody College, Nashville, Tennessee. Other examples are:

"4 Steps To New Schools", Bureau of Educational Research and Services, Ohio State University, Columbus 10, Ohio
"Planning America's School Buildings", AASA Report, 1960, $6.00
"Environmental Engineering For The School", U. S. Office of Education, for sale by the Superintendent of Documents, U. S. Office Printing Office, Washington 25, D.C., 50¢
The publications of the Educational Facilities Laboratories, 477 Madison Avenue, New York 22, New York

CHAPTER II

GENERAL FINDINGS AND RECOMMENDATIONS FOR USE OF THE GUIDELINES

In the light of current and generally accepted standards of excellence an adequate curriculum and program of services cannot be provided for any high school of less than 500 enrollment at an economical expenditure of tax monies. It is recommended that only in exceptional situations should a new high school of less than 500 pupils be planned as a permanent high school center. It is further recommended that where the construction of a high school for less than 500 pupils is planned that such high school should include facilities to provide offerings in curriculum and services equal to those needed for a school of 500 enrollment.

It is recommended that any existing facility being used or new buildings being constructed should provide the facilities needed to meet the minimum school standards as established by the State Board of Education.

It is also recommended that, following a year's use, these guidelines be reviewed and re-evaluated giving careful consideration to reactions from school people and architects. Persons using the publication are urged to submit recommendations for the improvement of the materials and the widening of the scope of the document.

To simplify the use of the guidelines the basic requirements for elementary, junior high and senior or four year high schools are listed in that order. The designation in the upper right corner of each page indicates the type of school, E for elementary, Jr for junior high and HS for senior high and four year high schools. Following the basic listings are a limited list of desirable features or alternates that should be considered if funds are available.

These basic requirements and desirable alternates are not to be considered as restrictive but, as indicated above, to be used by school administrators, boards of education and architects as guidelines. This document is not all inclusive and the ideas developed are basically minimums, subject to additions and variations as money and the local needs indicate.

Recommended finishes and equipment lists are particularly subject to revision because of rapid changes and improvements in these areas.

In the use of this publication consideration should be given to the following suggestions and generalizations:

1. These standards are for general application. Modifications must be made where the educational program has been developed to fit specific needs.

2. Calculation of Number of Academic Classrooms. The figures shown for junior and senior high schools are based on usage for an eight period day. The ratio used is one classroom for 50 pupils. This figure is considered liberal for the larger schools and a ratio of one to 60 is not unrealistic. Schools that operate a nine period day should use a ratio of one to 65. A six period day usually indicates need for less study hall space and more classrooms and other instructional areas. A liberal ratio in this situation is one classroom to 45 pupils.

3. Plan for Economical Expansion. Special facilities such as laboratories, shops and music rooms are usually very difficult to expand. It is generally desirable to keep these subjects and activities in one area. If it appears probable that a high school will be greatly expanded in the future, consideration should be given to planning classrooms adjacent to these special areas with roughed-in plumbing, wiring, etc., so that they could be converted economically to the additional special rooms as they are needed. Regular classrooms can be added at much less cost than laboratories.

4. Recommendations are not made as to type of heat or fuel. This decision should be based on the building design, availability and cost of fuel and a comparison of maintenance costs.

5. A recent revision of the Ohio Building Code allows windowless classrooms. The decision as to the use of such rooms is a local one but certain savings in construction cost and maintenance can be had if the designer has some leeway in limiting the amount of glass to be used.

6. Variations in design and use of rooms and areas make it difficult to specify the use of acoustical treatment, sound proof doors, darkening shades, electrical outlets, and other special features. The educational specifications should indicate all of the probable uses of each area so that the architect can plan accordingly.

7. Attention should be given to exhaust fans to supplement the regular forced ventilation in such areas as laboratories, toilets, clinics, lounges, small meeting rooms, kitchens, lunchrooms and the like.

CHAPTER III

BASIC CONSIDERATIONS IN PLANNING A NEW SCHOOL BUILDING

A. SITE

1. A site of adequate size for the ultimate enrollment should be secured.
2. The site should be located near the center of population of the attendance area that the building is to serve.
3. The site should be located away from main traffic routes but with good access roads.
4. The site should have access to utilities, especially an adequate water supply.
5. The site should be above flood plane, well drained, and with satisfactory soil conditions to support foundations.
6. Site planning should separate drives from play areas and general pedestrian traffic routes. Driveways should not circle the building.
7. In site selection unneeded street frontage should be avoided. In many incorporated areas assessments may be costly.
8. Site improvement including finished grade and planting should be included in the planning procedure.

DESIRABLE FEATURES

1. Some elevation from adjacent roads and terrain.
2. Reasonably good soil. If such top soil is properly stored and used site improvement is less costly.

B. WATER

1. The water needs for a building to house the ultimate enrollment should be calculated.
2. The source of supply should be determined prior to the purchase of a site.
    a. The site should be located on a public water system if possible.
    b. If a private water system is to be developed, the advice of the Water Division of the Department of Natural Resources should be secured and a test well drilled prior to the purchase of a site.

- c. The water should be tested to determine need for additional treatment.
- d. If additional treatment is needed, the facilities should be planned in the water distribution systems.

C. DESIGN

1. Should be functional, based on sound educational specifications.
2. Should be flexible to permit changes in future educational program.
3. Should be expandable to permit additions for facilities to provide for ultimate enrollment. If an addition appears probable in the near future the base facilities such as office space, heating, multi-purpose room, etc., should be designed accordingly.
4. Should make maximum use of standard modular units in construction.
5. Should provide for economical maintenance.

D. AESTHETIC FEATURES

1. Aesthetic features should be functional as well as attractive. Desirable aesthetic features can be gained by the proper arrangement of the various spaces of a building, the use of structural elements and the use of harmonizing color schemes for finishes.
2. Decorative wall treatment should be limited to the main entrances or main corridors.

E. HEATING AND VENTILATING

1. The plans must be designed to meet the requirements of the Ohio Building Code.
2. Automation should be limited to essential phases of the system.
3. The plans should permit zone control.
4. The plans should permit additions to the system.
5. The various types of heating should be investigated and considered as to the cost of installation and the cost of operation.

DESIRABLE FEATURES

1. Air conditioning, or
2. Designed so that air conditioning can be added,

F. ELECTRICAL

1. The plans must meet Ohio Building Code requirements for installation and lighting levels.

2. Economical and easily maintained fixtures that provides even levels of light should be used.
3. Exterior lighting should provide for essential lighting at entrances to the building.
4. Automatic devices should be limited to the essential phases of the system.
5. Conduit of sufficient capacity to handle television cable and the wiring for program clocks, telephones, inter-communication system or other signaling devices should be provided.
6. Electrical outlets should be placed as called for in the educational specifications.

DESIRABLE FEATURES

1. Exterior lighting for walks, drives and parking areas.
2. Television available for all pupils.

G. FIXED AND LOOSE EQUIPMENT

1. Equipment should be provided to meet the needs of the educational program based on sound, realistic educational specifications.

CHAPTER IV

ELEMENTARY SCHOOL BUILDINGS

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A. SIZE - An adequate curricular program and services cannot be provided economically in elementary schools with an enrollment of less than 240 pupils. The basic requirements are calculated for a 240 to 360 pupil elementary building.

B. SITE -

1. Ten acres plus one acre for each 100 pupils of ultimate enrollment. This recommendation may have to be modified because of excessive cost.
2. Located near center of attendance area.
3. Well drained with satisfactory soil conditions to support the foundations.
4. Located away from main traffic routes but with good access roads.
5. Access to utilities including an adequate water supply.
6. Planning should include site improvement.

C. ADMINISTRATIVE AREA IN ELEMENTARY BUILDINGS OF 240 TO 360 PUPIL CAPACITY

1.	Outer reception office and filing space	300 sq. ft.

a. Fixed Equipment -

  1) Office counter with storage and/or file space below
  2) Wardrobe storage - 10 sq. ft.
  3) Tackboard - 16 sq. ft.
  4) Master time clock
  5) P. A. console
  6) Window blinds for normal light control

b. Finishes -

  1) Vinyl asbestos tile floors
  2) Painted block walls
  3) Acoustical ceilings

c. Loose or Movable Equipment -

  1) Secretarial desk with chair
  2) Typewriter
  3) Six office chairs
  4) Pupil personnel file cabinets
  5) Work table
  6) Adding machine or tape calculator

2. Principal's Office 180 sq. ft.

a. Fixed Equipment -

  1) Wardrobe storage - 10 sq. ft.
  2) Window blinds for normal light control

b. Finishes -

  1) Vinyl asbestos tile floors
  2) Painted block walls
  3) Acoustical ceilings

c. Loose or Movable Equipment -

  1) Executive desk and chair
  2) Bookcase
  3) Three side chairs
  4) One 4-drawer file cabinet
  5) Work table

3. Clinic including sick rooms separated by curtains or folding doors. One 22' dimension suggested — 400 sq. ft.

   a. Fixed Equipment -

      1) Lavatory
      2) Window blinds for normal light control
      3) Toilet

   b. Finishes -

      1) Vinyl asbestos tile floors
      2) Painted block walls
      3) Glazed block or epoxy painted wainscots
      4) Acoustical ceilings

   c. Loose or Movable Equipment -

      1) Teacher's desk with chair
      2) Three student chairs
      3) One 4-drawer file cabinet
      4) Two recovery cots
      5) Weight scale with measuring rod
      6) Movable screen
      7) Dispensary cabinet
      8) Eye chart

4. Work Room and Office Supply Storage — 200 sq. ft.

   a. Fixed Equipment -

      1) Shelving
      2) Sink with work counter top - 8 sq. ft.
      3) Window blinds for normal light control

   b. Finishes -

      1) Asphalt tile floors
      2) Painted block walls
      3) Acoustical ceilings

   c. Loose or Movable Equipment -

      1) Work table
      2) Three student chairs - adult size

3) Liquid duplicator with cabinet
4) Mimeograph with cabinet
5) Two supply cabinets

5. Faculty Room 200 sq. ft.

a. Fixed Equipment -

1) Faculty toilets with entrances from corridor
2) Window blinds for normal light control
3) Tackboard - 16 sq. ft.

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose or Movable Equipment -

1) Lounge
2) Two lounge chairs
3) Two work tables
4) Six office chairs

6. Pupil Personnel Service Room 100 sq. ft.

a. Fixed Equipment -

1) Tackboard - 16 sq. ft.
2) Window blinds for normal light control

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose or Movable Equipment -

1) Single pedestal teachers desk with chair
2) Three student chairs
3) One 4-drawer file cabinet

7. Book Storage and Supply Room 250 sq. ft.

  a. Fixed Equipment -

    1) Shelving on three walls
    2) Supply cabinet

  b. Finishes -

    1) Asphalt tile floors
    2) Painted block walls
    3) Exposed deck

  c. Loose or Movable Equipment -

    Work table

CC. ADDITIONAL ADMINISTRATIVE FACILITIES FOR ELEMENTARY BUILDINGS WITH A CAPACITY OF 390 TO 600 PUPILS

Increase the space for the outer reception office to	400 sq. ft.

CCC. ADDITIONAL ADMINISTRATIVE FACILITIES FOR ELEMENTARY BUILDINGS WITH A CAPACITY IN EXCESS OF 600 PUPILS

Pupil personnel service room	100 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE ADMINISTRATIVE AREA IF FUNDS ARE AVAILABLE

1. Vinyl asbestos tile floors in lieu of asphalt tile floors in all elementary buildings
2. Glazed tile or epoxy painted wainscots in lieu of painted block in all elementary buildings
3. Consideration could be given to providing additional offices for pupil personnel workers and assistant principal in elementary buildings with a capacity of 390 or more pupils 100 sq. ft.
4. Enlarge the faculty room and the work room

D. ELEMENTARY ACADEMIC CLASSROOMS

1. Kindergarten 1000 sq. ft.
2. Grades 1 - 8 800 sq. ft.

    a. Fixed Equipment - (each room as indicated)

        1) Self-contained toilets for kindergarten
        2) Sink with work counter top for kindergarten and grades 1 - 3, 8 sq. ft.
        3) Alcove for student clothing
        4) One wall of chalkboard, 27 lineal feet
        5) Tackboard space, 48 sq. ft.
        6) Unit ventilator with book shelving and work counter top along one wall
        7) Teachers wardrobe and storage, 6 to 8 sq. ft.
        8) General storage, 9 to 12 sq. ft.
        9) Window blinds for normal light control

    b. Finishes -

        1) Asphalt tile floors
        2) Painted block walls
        3) Acoustical ceilings

    c. Loose Equipment - (each room as indicated)

        1) Desks or tables with separate chairs for kindergarten and grades 1 - 3 for 30 pupils
        2) Chair desks or study top desks for grades 4 - 8 for 30 pupils
        3) Teacher's desk with chair
        4) One 4-drawer file cabinet
        5) Two work tables with 12 chairs for kindergarten and grades 1 - 3
        6) Table with 6 chairs for grades 4 - 8

DESIRABLE FEATURES TO BE CONSIDERED FOR THE ELEMENTARY ACADEMIC CLASSROOMS IF FUNDS ARE AVAILABLE

1. Kindergarten - "L" shaped room 1200 sq. ft.
2. Grades 1 - 3 900 to 950 sq. ft.
   Self-contained toilets for lower grades

3. Additional Fixed Equipment - (each room as indicated)

   a. Radiant floor heat in kindergarten
   b. Enlarge general storage area in kindergarten to 18 - 24 sq. ft.
   c. Closures for student clothing alcoves for grades 1 - 6
   d. Clothing lockers in corridors for 7th and 8th grade pupils in lieu of clothing alcoves
   e. One sink with 8 sq. ft. of work top for grades 4 - 8
   f. Increase work counter top space to 16 sq. ft.
   g. Increase tackboard space to 60 sq. ft.

4. Finishes -

   a. Vinyl asbestos tile floors in lieu of asphalt tile
   b. Glazed tile or epoxy painted wainscots

5. Additional Loose or Movable Equipment - (each room as indicated)

   a. Bookcases that could also be used as a room divider to separate activities in kindergartens
   b. Record player for kindergarten and grades 1 - 3
   c. Portable science demonstration table available for grades 4 - 8
   d. Three adult chairs or folding chairs for kindergarten and grades 1 - 8

6. ART ROOM. The desirability of a separate art room in an elementary building depends on the school's curriculum and plan of operations. If art is taught by a special teacher and if the course of study calls for considerable special equipment, a separate room with the necessary storage space becomes more desirable as the number of pupils to be served increases — 1000 sq. ft.

   a. Fixed equipment should include a sink, hot and cold water, adequate counter space and satisfactory lighting, 48 sq. ft. of tackboard, 27' of chalkboard
   b. Loose equipment. Not listed due to program variations

E. MULTI-PURPOSE ROOM - THIS SHOULD BE CONSIDERED BASIC TO AN ELEMENTARY BUILDING WITH A CAPACITY IN EXCESS OF 240 PUPILS

1. Multi-purpose room for elementary buildings with 240 to 360 pupil capacity (40 x 60) — 2400 sq. ft.

   a. Fixed Equipment -

      Two wood or metal backstops

   b. Finishes -

      1) Vinyl tile floors
      2) Painted block walls
      3) Exposed deck ceiling

   c. Loose or Movable Equipment -

      1) Portable folding tables with benches or in-wall folding tables with benches to seat 250 for lunches
      2) Metal folding chairs - 240 to 360
      3) School studio type piano with bench and dolly
      4) Portable stage - 10 x 20

2. Storage Room — 150 sq. ft.

EE. MULTI-PURPOSE ROOM FOR ELEMENTARY BUILDINGS OF 390 TO 600 PUPIL CAPACITY

1. Multi-purpose room plus a stage (40 x 60 room - 20 x 30 stage) — 3000 sq. ft.

   a. Fixed Equipment -

      1) Two wood or metal basketball backstops
      2) Stage curtains including front curtain, valance, cyclorama and two borders

   b. Finishes -

      1) Vinyl tile floors
      2) Painted block walls
      3) Exposed deck ceiling

c. Loose or Movable Equipment -

1) Portable folding tables with benches or in-wall folding tables with benches to seat 300 for lunches
2) Metal folding chairs - 300 to 500
3) School studio type piano with bench and dolly

2. Storage Room 150 to 200 sq. ft.

EEE. MULTI-PURPOSE ROOM FOR ELEMENTARY BUILDINGS IN EXCESS OF 600 PUPIL CAPACITY

1. Multi-purpose room plus a stage
(50 x 70 room - 20 x 30 stage) 4100 sq. ft.

a. Fixed Equipment -

1) Two wooden or metal basketball backstops
2) Stage curtains including front curtain, valance, cyclorama and two borders

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Exposed deck ceiling

c. Loose or Movable Equipment -

1) Portable folding tables with benches or in-wall folding tables with benches to seat 450 for lunches
2) Metal folding chairs - 500 to 650
3) School studio type piano with bench and dolly

2. Storage Room 180 to 200 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE MULTI-PURPOSE ROOM IF FUNDS ARE AVAILABLE

1. Adjustable basketball backstops for stage end of the multi-purpose room when permanent stage is provided
2. Glazed block or epoxy wainscots
3. One recessed drinking fountain

F. KITCHEN AREA. This area should be considered with the multi-purpose room for an elementary building with a capacity of 240, or more pupils. An exception would be the community school where all or nearly all the pupils walk to school and customarily go to their homes for lunch.

The following facilities should be planned for a 240 pupil elementary school with 80% to 100% pupil participation in the lunch program. This space and equipment might be modified if the percentage of participation changes or if the food were prepared in a central kitchen for all buildings or if central storage were provided for all buildings. This area is calculated on the basis of 2-1/2 square feet per lunch for an average daily serving of 240 lunches

1. One kitchen area including space for (240 x 2-1/2) 600 sq. ft.

Dry storage
Cold storage
General storage
Food preparation
Serving counter and line within the kitchen area
Dish washing
Employee's rest room and office
Garbage cans

a. Fixed Equipment -

1) One 36" range
2) One 3 deck oven
3) One 20 gallon steam kettle
4) One 2 compartment steamer
5) Ventilating hoods over cooking and dish washing equipment
6) One 20 pound vegetable peeler
7) One 6" electric slicer
8) One 20 quart mixer
9) One serving counter with food warmer and sneeze bar
10) One soiled dish counter
11) One pre-wash unit
12) One dish washer
13) One clean dish counter
14) One cook's sink
15) One pot sink

16) One milk cooler
17) One cook's table
18) One water booster heater
19) One 30 cubic foot reach-in refrigerator
20) One service sink
21) Kitchen employee's rest room and locker facilities
22) Can washing and garbage disposal facilities
23) Shelving for general and dry storage areas

b. Finishes -

1) Sheet vinyl or terrazzo floors in food preparation, serving and dish washing areas
2) Concrete floors in storage areas
3) Epoxy painted or glazed tile walls in food preparation, serving and dish washing areas
4) Painted block walls in all other areas
5) Keenes cement plaster ceilings in food preparation, serving and dish washing areas

c. Loose Equipment -

1) Pots
2) Pans
3) Utensils
4) Dishes
5) Trays
6) Tableware with portable tray
7) Miscellaneous kitchen items
8) Single pedestal desk with chair
9) One 4-drawer file cabinet

2. Space and equipment required for a 510 pupil elementary school with 80% to 100% pupil participation in the lunch program

a. Increase total kitchen area space - 2-1/2 sq. ft. per estimated number of lunches to be served
b. Increase the size of fixed equipment

1) Steam kettle to 30 gallons
2) Mixer to 30 quarts
3) Cook's tables, increase to 2

3. Space and equipment required for a 720 pupil elementary school with 80% to 100% pupil participation in the lunch program

    a. Increase total kitchen area space - 2-1/2 sq. ft. per estimated number of lunches to be served
    b. Install second serving line
    c. Increase size of steam kettle to 40 gallons

DESIRABLE FEATURES TO BE CONSIDERED FOR THE KITCHEN AREA IF FUNDS ARE AVAILABLE

1. Add a walk-in cooler freezer for a 240 pupil school
2. Increase size of steam kettle in the 510 pupil school to 40 gallons and in the 720 pupil school use two 30 gallon steam kettles in lieu of one 40 gallon kettle
3. In lieu of the 30 cubic foot size, provide a 70 cubic foot reach-through refrigerator in the 510 and 720 pupil schools
4. Consider disposals where needed, provided sewage lines are connected to public sewage system
5. Provide a kitchenette adjacent to the multi-purpose room for faculty and community meeting use in those schools that do not serve pupil lunches

G. MUSIC ROOM

1. Elementary schools grades K - 8 of 480 pupil capacity 16 rooms or more, or upper grade elementary buildings grades 5 - 8 of 360 pupil capacity 12 rooms or more, a separate music room 1160 sq. ft.

    Elementary schools with a pupil capacity range through 450 (15 rooms) should provide proper equipment to allow for music instruction in the regular classrooms. Where a separate music room is not provided, the administrative area should include a small music office and storage area for music equipment and supplies

    a. Fixed Equipment -

        1) One wall of chalkboard - 20 lineal feet
        2) Storage with shelving - 160 sq. ft.
        3) Tackboard - 48 sq. ft.
        4) Window blinds for normal light control

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose Equipment -

1) School studio type piano with bench
2) Sixty student chairs
3) Twenty music stands
4) Record player
5) Two work tables
6) Teacher's desk with chair

DESIRABLE FEATURES TO BE CONSIDERED IN THE MUSIC AREA
IF FUNDS ARE AVAILABLE

1. A combination music-art room should be considered where the school program would provide at least 75% daily usage for such facility
2. All elementary buildings with a pupil capacity of 240 or more should consider a separate music room 900 to 1160 sq. ft.
3. One wall of the music room acoustically treated or acoustical panels on two or more walls
4. Glazed tile or epoxy painted wainscots
5. Vinyl asbestos tile floor
6. Director's stand

H. LIBRARY

1. Elementary schools of less than 480 pupil capacity should have a library storage room adjacent to the administrative area for central storage of library books and equipment 400 to 900 sq. ft.

a. Fixed Equipment -

1) Shelving on three walls
2) Sink with work counter top - 16 sq. ft.

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceiling

c. Loose Equipment -

Card catalog file

2. Elementary schools of more than 480 pupil capacity should consider as basic a library area of 1000 sq. ft.

a. Fixed Equipment -

1) Shelving for 3,000 volumes
2) Storage area with sink and work counter top, 24 sq. ft.
3) Window blinds for normal light control

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose Equipment -

1) Five student tables with 30 chairs
2) Card catalogue file
3) Dictionary stand
4) Teacher's desk with chair
5) One 4-drawer file cabinet

DESIRABLE FEATURES TO BE CONSIDERED FOR THE LIBRARY AREA IF FUNDS ARE AVAILABLE

1. For elementary schools 360 to 480 pupil capacity a library room with similar finishes and equipment as listed above 900 sq. ft.
2. Magazine and newspaper rack
3. Charge-out desk

I. HEATER ROOM AND MECHANICAL ROOM

1. Adequate to provide space and equipment for ultimate enrollment in the building, dependent upon type of heating — 700 sq. ft.

   a. Fixed Equipment -

      Necessary to meet the needs of the present enrollment of the building and to meet the Ohio Building Code

   b. Finishes -

      1) Concrete floors
      2) Painted block walls
      3) Ceilings to meet Ohio Building Code

   c. Fuel storage if needed

J. CUSTODIAL FACILITIES

1. Work room and custodial storage area adjacent to the heater room and receiving area — 300 sq. ft.

   a. Fixed Equipment -

      1) Shelving on one wall
      2) Wardrobe storage, 6 - 8 sq. ft.

   b. Finishes -

      1) Concrete floors
      2) Painted block walls
      3) Keenes cement plaster ceilings

   c. Loose Equipment -

      1) Floor scrubber
      2) Vacuum pick-up
      3) Work table

2. Janitor's storage areas with service sinks for cleaning equipment should be located adjacent to student rest rooms — 30 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED FOR THE CUSTODIAL FACILITIES IF FUNDS ARE AVAILABLE

1.	Storage room at grade level for outdoor equipment	80 sq. ft.
2.	Incinerator	

K. TOILET ROOMS FOR 240 PUPIL ELEMENTARY SCHOOLS

1. One Boys' Toilet — 250 sq. ft.
   - a. Fixed Equipment -
     - 1) Three water closets - wall hung. Stalls without doors
     - 2) Four urinals - wall hung
     - 3) Two lavatories with soap dispensers
     - 4) Two mirrors
     - 5) One book shelf
   - b. Finishes -
     - 1) Terrazzo floors
     - 2) Glazed tile or epoxy painted block walls
     - 3) Keenes plaster ceilings
2. One Girls' Toilet — 250 sq. ft.
   - a. Fixed Equipment -
     - 1) Five water closets - wall hung. Stalls with doors
     - 2) Two lavatories with soap dispensers
     - 3) Two mirrors
     - 4) One book shelf
3. Faculty Men's Toilet adjacent to the Faculty Room — 24 sq. ft.
   - a. Fixed Equipment -
     - 1) One water closet
     - 2) One urinal

3) One lavatory
4) One mirror
5) One ceiling exhaust vent

b. Finishes -

1) Vinyl or ceramic tile floors
2) Glazed tile or epoxy painted walls
3) Keenes plaster ceilings

4. Faculty Women's Toilet adjacent to the Faculty Room 30 sq. ft.

a. Fixed Equipment -

1) One water closet
2) One lavatory
3) One mirror
4) One ceiling exhaust vent

b. Finishes -

1) Vinyl or ceramic tile floors
2) Glazed tile or epoxy painted walls
3) Keenes plaster ceilings

KK. TOILET ROOMS FOR 480 PUPIL ELEMENTARY SCHOOLS

1. Two Boys' Toilet Rooms - 180 sq. ft. x 2 360 sq. ft.

a. Fixed Equipment - (each)

Increase urinals to 8 - wall hung

b. Finishes -

Same as for 240 pupil school

2. Two Girls' Toilet Rooms - 180 sq. ft. x 2 360 sq. ft.

a. Fixed Equipment - (each)

Increase water closets to 7 - wall hung

b. Finishes -

Same as for 240 pupil school

3. Faculty Men's and Women's Toilets - 30 sq. ft. x 2 60 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED FOR TOILET ROOMS IF FUNDS ARE AVAILABLE

1. One toilet located within the administrative area 30 sq. ft.
   Corridor or double door entrance should be provided

L. CORRIDORS AND ENTRANCE WAYS

1. 240 to 360 pupil buildings - 8 foot width - 3200 sq. ft.
   480 to 720 pupil buildings - 9 foot width - 6200 sq. ft.

   a. Fixed Equipment -

   Limited display cases

   b. Finishes -

   1) Acoustical treated ceilings
   2) Epoxy painted block or glazed tile exposed walls
   3) Vinyl asbestos tile floors

DESIRABLE FEATURES TO BE CONSIDERED FOR CORRIDORS AND ENTRANCE WAYS IF FUNDS ARE AVAILABLE

1. Terrazzo floors
2. Some decorative walls at the main entrance
3. Additional display cases at strategic points
4. Twelve inch clothing lockers for each two pupils in 7th and 8th grades

M. MAIN DRIVEWAYS, WALKS AND PLAY AREA

1. Main driveway to bus loading entrances

a. Driveway sufficiently wide for two buses to pass (unless a one-way loop)
b. Driveway and parking area should provide space so that school buses can be turned around without the necessity of backing the school bus on the school grounds
c. Driveway and bus loading area should be constructed of 8" of crushed stone and 3" of blacktop coating
d. Parking lot space should be provided for 100 to 500 cars
e. Parking area should be constructed with a minimum of 8" of crushed stone
f. Driveway should extend to the receiving area for janitorial supplies and kitchen
g. One or more play area drinking fountains
h. Driveway should not encircle the building

2. Walk Ways

a. Eight foot concrete walks should lead from the bus loading area to the main entrance
b. Six foot concrete walks should lead from the driveway or parking lot to all entrances

DESIRABLE FEATURES TO BE CONSIDERED FOR DRIVEWAYS, WALKS AND PLAY AREA IF FUNDS ARE AVAILABLE

1. Covered walk way for bus loading area
2. Blacktop parking lot
3. Additional blacktop outdoor playing space (1,000 to 2,000 sq. ft.)
4. Playground equipment

N. ELECTRICAL EQUIPMENT

1. P. A. System for administrative purposes

a. Console with selective switches in administrative area
b. Two-way speakers in each teaching station
c. Conduit large enough to carry television wiring

2. Electrical Clock and Program System

   a. Master clock in administrative area
   b. Clock with program signal in each teaching station and boiler room
   c. Clock in each main corridor
   d. Playground program signal bell outdoors

3. Electrical Fire Alarm System to meet requirements of the Ohio Building Code

DESIRABLE FEATURES TO BE CONSIDERED FOR ELECTRICAL EQUIPMENT IF FUNDS ARE AVAILABLE

1. Television antenna and receivers
2. AM FM radios and record players in P. A. Console
3. Remote control unit microphone and amplifier for P. A. System in multi-purpose room

CHAPTER V

JUNIOR HIGH SCHOOL BUILDINGS

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A. SIZE - An adequate program of curriculum, services and construction cannot be provided economically in junior high schools (grades 7 thru 9) with an enrollment of less than 500 pupils. Basic requirements are calculated for a 500 pupil junior high school building.

B. SITE -

1. Fifteen acres plus one acre for each 100 pupils (500 pupils = 20 acres). This recommendation may have to be modified because of excessive cost.
2. Located near senior high school if the majority of pupils are to be transported. This should provide economy in transportation including dual routing of buses.
3. Located near center of population of area to be served. Consideration should be given to the possibility of additional junior high schools.
4. Located away from main traffic routes but with good access roads.
5. Access to utilities including especially an adequate water supply.
6. Planning should include site improvement.

C. ADMINISTRATIVE AREA - (500 PUPILS)

1. Outer reception office and filing space 400 sq. ft.

   a. Fixed equipment -

      1) Reception counter
      2) Pupil personnel files
      3) Master time clock
      4) P. A. console (May be located in English or speech instruction area)
      5) Window blinds for normal light control
      6) Tackboard - 32 sq. ft.

   b. Finishes -

      1) Painted block walls
      2) Acoustical ceilings
      3) Vinyl asbestos tile floors

   c. Loose or movable equipment -

      1) Secretarial desk, chair and typewriter
      2) Six reception chairs
      3) Work table
      4) Tape calculator

2. Principal's office 200 sq. ft.

   a. Fixed equipment -

      1) Storage bookcase or built-in shelving
      2) Window blinds for normal light control

   b. Finishes -

      1) Painted block walls
      2) Acoustical ceilings
      3) Vinyl asbestos tile floors

   c. Loose or movable equipment -

      1) Executive desk and chair
      2) Filing cabinet
      3) Work table

        4) Four office chairs

3. Clinic including sick rooms separated by curtains or folding doors. One 22' dimension suggested — 400 sq. ft.

    a. Fixed equipment -

        1) Sink with running water
        2) Window blinds for normal light control

    b. Finishes -

        1) Painted block walls
        2) Epoxy painted or glazed block wainscot
        3) Vinyl asbestos tile floors

    c. Loose or movable equipment -

        1) Teacher's desk with chair
        2) Two side chairs
        3) Medicine cabinet
        4) Scale
        5) Eye chart
        6) Two recovery cots

4. Workroom — 200 sq. ft.

    a. Fixed equipment -

        1) Built-in shelving
        2) Sink with running water
        3) Window blinds for normal light control

    b. Finishes -

        1) Painted block walls
        2) Asphalt tile floors

    c. Loose or movable equipment -

        1) Work table and chair
        2) Mimeograph and cabinet
        3) Liquid duplicator and cabinet

5. Faculty room 200 sq. ft.

   a. Fixed equipment -

      1) Faculty toilets located in corridor adjacent to faculty room
      2) Window blinds for normal light control

   b. Finishes -

      1) Painted block walls
      2) Asphalt tile floors

   c. Loose or movable equipment -

      1) Davenport
      2) Two easy chairs
      3) Two work tables
      4) Six office chairs

6. Guidance offices - (2 @ 100 sq. ft. each) 200 sq. ft.

   a. Fixed equipment -

      1) Display rack
      2) Tackboard
      3) Window blinds for normal light control

   b. Finishes -

      1) Painted block walls
      2) Asphalt tile floors

   c. Loose equipment -

      1) Teacher's desk and chair
      2) Two side chairs
      3) One 4-drawer file cabinet

7. Book and storage room 300 sq. ft.

   a. Fixed equipment -

      Storage shelving on three walls

b. Finishes -

1) Painted block walls
2) Asphalt tile floors

c. Loose equipment -

One work table

CC. ADDITIONAL ADMINISTRATIVE AREA FOR A 750 PUPIL HIGH SCHOOL - GRADES 7 TO 9

1. Two rooms (100 sq. ft. each) with similar finish and equipment for guidance and pupil personnel services	200 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE ADMINISTRATIVE AREA IF FUNDS ARE AVAILABLE

1. Epoxy paint or glazed tile wainscot in all rooms except the storage area
2. Drapes for light control in the principal's office
3. Substitute vinyl floors for asphalt tile
4. Consideration might be given to increasing the size of the administrative space

D. ACADEMIC CLASSROOMS FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. Ten academic classrooms - (720 sq. ft. each). This calculation is based on a ratio of one classroom to 50 pupils for an eight period day	7200 sq. ft.

a. Fixed equipment -

1) Shelving and work top along one wall between unit ventilators
2) Twenty-four to thirty lineal feet of chalkboard
3) Forty-eight square feet of tackboard
4) Lockers located in the corridors
5) Teacher's storage closet or cabinet (10 sq. ft.)

6) Window blinds for normal light control
7) One or more rooms may be designated as areas for use of visual aids. Such rooms should be equipped with adequate light control shades and electric outlets
8) Glass walls should be avoided and the windows should be limited to standard size windows (30" sill height)

b. Finishes -

1) Painted block walls
2) Asphalt tile floors
3) Acoustical ceilings

c. Loose equipment -

1) Teacher's desk and chair
2) One 4-drawer file cabinet
3) Thirty student chair desks or study top desks

DD. ADDITIONAL ACADEMIC CLASSROOMS FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. Five academic classrooms with similar finish and equipment based on a ratio of one room to 50 pupils 3600 ~~4320~~ sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE ACADEMIC CLASSROOMS IF FUNDS ARE AVAILABLE

1. Epoxy paint or glazed tile wainscot
2. The English rooms and the social science rooms should be grouped together with two or more of the rooms separated from the adjacent room by a folding partition so that the rooms can be used for large group instruction
3. One of the rooms could include a raised platform at one end of the room for dramatics and public speaking
4. Art Room. The desirability of a separate laboratory type art room in a junior high school depends on the school's curriculum and plan of operation. If art is scheduled as a separate subject and if the course of study calls for considerable art equipment, a special room with the necessary storage space will probably be needed. Size and arrangement will vary with the planned use. A minimum of 1,000

sq. ft. is suggested 1000 sq. ft.

a. Fixed equipment should include a sink, hot and cold water, adequate counter and shelf space, chalkboard, tackboard and satisfactory lighting

b. Loose equipment is not listed due to program variations

E. SCIENCE LABORATORIES - 500 PUPIL JUNIOR HIGH SCHOOL

1. One biology-general science laboratory	1080 sq. ft.
One storage room	120 sq. ft.
One preparation room	120 sq. ft.

a. Fixed equipment -

1) Demonstration desk with sink, running water, electrical outlet and gas service
2) Wall cabinets for storage and display
3) Window blinds for normal light control
4) Darkening shades for use of visual aids
5) Shelving in storage room
6) Work table with sink, running water, electrical outlet and gas service, in the preparation room
7) Aquarium
8) Chalkboard - 16 lineal feet
9) Tackboard - 48 sq. ft.

b. Finishes -

1) Painted block walls with epoxy wainscots in exposed areas
2) Vinyl asbestos tile floors
3) Acoustical ceiling

c. Loose equipment -

1) Teacher's desk and chair
2) One 4-drawer file cabinet
3) Tables with 30 chairs

2. One general science laboratory adjacent to the biology-general science laboratory for joint use of storage and preparation rooms 1080 sq. ft.

   a. Fixed equipment -

      1) Demonstration desk with electrical service, sink and running water
      2) Table with electrical service, sink and running water in the preparation room
      3) Shelving in the storage room
      4) Wall cabinets for storage and display in the laboratories
      5) Window blinds for normal light control
      6) Darkening shades for visual aid use

   b. Finishes -

      1) Painted block walls with epoxy wainscots in exposed areas
      2) Vinyl asbestos tile floors

   c. Loose equipment -

      1) Thirty 2-pupil tables and chairs for 60 pupils
      2) Slide and strip film projector
      3) Two teacher's desks and chairs
      4) Two 4-drawer file cabinets

EE. ADDITIONAL SPACE AND EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. One general science or biology laboratory with finish and equipment as listed above	1080 sq. ft.
One storage room	120 sq. ft.
One preparation room	120 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED FOR THE SCIENCE AREA IF FUNDS ARE AVAILABLE

1. Additional models of biological specimens
2. Classified animal collection in separate jars

3. An additional biology or general science laboratory if program indicates need. Include storage and preparation rooms — 1320 sq. ft.
4. Biological charts
5. Three sets of balance scales
6. Individual pupil equipment for dissection work
7. Four micro-projectors
8. Plant growing area
9. Dark room

F. HOME ECONOMICS SPACE AND EQUIPMENT FOR A 500 PUPIL TO 750 PUPIL JUNIOR HIGH SCHOOL

1. Foods classroom — 1200 sq. ft.

    a. Fixed equipment -

        1) 5-6 Unit kitchens (each unit kitchen includes)
            8-10 lineal feet of work surface exclusive of sink and stove
            1 Stove
            1 Double sink
            Base cabinets- 12-14 lineal feet
            Wall cabinets- 7-9 lineal feet
        2) Storage cabinets- 9-11 lineal feet
            2 General storage
            1 Apron storage
            1 Cleaning cabinet
        3) Book shelves
            12 inch shelving to store pupil books (24 pupils)
        4) Chalkboard - 10 lineal feet - located for teaching center
        5) Tackboard - 10 lineal feet

    b. Finishes -

        1) Painted block walls
        2) Vinyl tile floors

    c. Loose equipment -

        1) 24 Student chairs
        2) 6 Multi-purpose tables (four students per table)

3) 1 Refrigerator with freezing compartment
4) 1 Washer
5) 1 Dryer
6) 1 Teacher's desk
7) 1 Chair
8) 1 4-drawer file cabinet, legal size
Small equipment (adequate for teaching foods on a meal planning basis)
See equipment list prepared by State Department of Education, Vocational Home Economics Section

2. Clothing classroom 1200 sq. ft.

a. Fixed equipment -

1) Storage cabinets - 32 lineal feet
   - 2 Storage cabinets for 100 tote trays
   - 2 Wardrobe cabinets
   - 1 Cabinet for pressing equipment
   - 1 Sink cabinet or laboratory
   - 1 General storage cabinet - 7' high, 4' to 8' wide
   - 1 Cabinet (36" high)

2) Storage for books and child development materials
3) 1 Triple mirror either on door cabinets or wall
4) 12 Inch shelving to store pupil books (24 pupils)
5) Chalkboard - 13 lineal feet - located for teaching center
6) Tackboard - 10 lineal feet
7) Darkening shades for visual aids

b. Finishes -

1) Painted block walls
2) Vinyl tile floors
3) Acoustical ceilings

c. Loose equipment -

1) 24 Student chairs
2) 6 Tables (42" by 60") - for 24 students
3) 9 to 12 sewing machines (sewing machine tables are not recommended)

4) 3 Ironing boards
5) 2 Folding screens
6) 1 Teacher's desk and chair
7) 1 4-drawer file cabinet
8) Small equipment needed for teaching clothing construction
   See equipment list prepared by Vocational Home Economics Section, State Department of Education

3. Design suggestions

   a. Rooms should be arranged as a suite
   b. Foods and clothing rooms that are square rather than rectangular are more easily adapted to the installation of large fixed equipment

4. Junior High schools with limited enrollment in home economics

In determining the need for the number of teaching stations in a junior high school, consideration should be given to the program planned for the school, to the probable growth in enrollment and to community interest in the subject. If home economics is only required one year and for a limited number of periods per week and if there is evidence that it will not be heavily elected, the following space and equipment may suffice

ONE COMBINATION LABORATORY	1400 - 1800 sq. ft.

Four to six unit kitchens and equipment for foods, clothing and home management instruction from the above lists should be provided

DESIRABLE FEATURES TO BE CONSIDERED FOR HOME ECONOMICS AREA IN A JUNIOR HIGH SCHOOL IF FUNDS ARE AVAILABLE

1.	1-Mobile demonstration cabinet equipped with overhead mirror	
2.	1-Walk-in storage - 75-100 sq. ft.	100 sq. ft.
3.	A third teaching station is recommended in schools of over 750 to be equipped as a foods and clothing all-purpose room	1800 sq. ft.

G. INDUSTRIAL ARTS AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. Industrial arts shop including project storage, material storage, office and wash up facilities 2400 ~~2000~~ sq. ft.

a. Fixed equipment -

Wood Working Area

1) Artificial light to meet Ohio Building Code
2) Two lathes combination wood and metal
3) One pedestal grinder
4) One disc sander
5) One tilting arbor saw
6) One 8" jointer
7) One 14" band saw
8) One 1/2" drill press
9) Three 4-station benches with lockers and vises
10) One 24" jig saw
11) One 12" planer

Electrical Area

One electric test bench

General Metals Area

In those junior high schools that plan a full general metals program as a part of their industrial arts course, the following equipment is necessary:

1) One 10" lathe
2) One 1/2" drill press
3) Pedestal grinder
4) Gas forge
5) Squaring shear
6) Slip roll
7) Combination brake and folder
8) Two gas soldering furnaces
9) Melting furnace
10) Molders bench
11) One 70 pound anvil
12) Combination sheet metal bench

    13) Metal working bench
    14) Sheet metal bench with stake plate and stakes
    15) Oxy-acetyline welding outfit
    16) Horizontal mill

  b. Finishes -

    1) Painted block walls
    2) Concrete floors
    3) Skylights or limited windows - sill height 6'

  c. Loose equipment -

    1) Four machine vises
    2) Miscellaneous hand tools
    3) Teacher's desk and chair
    4) One 4-drawer file cabinet

2. Drawing room 840 sq. ft.

  a. Fixed equipment -

Artificial light to meet Ohio Building Code

  b. Finishes -

    1) Painted block walls
    2) Vinyl asbestos floor

  c. Loose equipment -

    1) Twenty drawing tables
    2) Twenty stools
    3) Twenty drawing boards
    4) Twenty tee squares

DESIRABLE FEATURES TO BE CONSIDERED FOR THE INDUSTRIAL ARTS AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL IF FUNDS ARE AVAILABLE

1. Additional equipment for general metals working area:

  a. Vertical mill
  b. One 10" lathe

c. Metal band saw
d. Power hacksaw
e. Arc welding outfit

2. Additional equipment for graphic arts area:

a. Two pilot presses
b. One double tier type cabinet
c. One proof press
d. One imposing stone
e. One materials cabinet
f. One silk screen area
g. One book binding bench
h. One paper cutter
i. One platen press
j. Miscellaneous equipment for above items
k. Type cases and fonts of type

GG. ADDITIONAL SPACE FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. One industrial arts shop including storage and office	2000 sq. ft.

a. Equipment -

All equipment listed as basic and desirable for the 500 pupil junior high school would be required for the 750 pupil junior high school, however, it would be divided between the two shop areas

H. BUSINESS EDUCATION AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. One combination typing-general business room	900 sq. ft.

a. Fixed equipment -

1) Electrical outlets for typewriters and calculators
2) Tackboard - 48 sq. ft.
3) Chalkboard - 16 lineal feet

b. Finishes -

  1) Acoustical ceilings
  2) Asphalt tile floor
  3) Painted block walls

c. Loose equipment -

  1) Thirty combination typing and bookkeeping desks
  2) Thirty student chairs
  3) Teacher's desk and chair
  4) One 4-drawer file cabinet
  5) Thirty typewriters
  6) One adding machine
  7) One calculator

HH. ADDITIONAL SPACE AND EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL

The same facilities will serve a 750 pupil junior high school with the exception of some part time use of another academic room

DESIRABLE FEATURES TO BE CONSIDERED IN THE BUSINESS EDUCATION AREA IF FUNDS ARE AVAILABLE

One additional general academic classroom	720 sq. ft.

I. MUSIC AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

The music area for all schools should be planned as a unit so as to secure efficiency in the use of teacher time and of equipment. The rehearsal and practice areas should be removed from the regular academic and study areas of the school. It is desirable to provide convenient access to the auditorium or gymnasium stage and to the athletic field

1. One combination vocal and instrumental rehearsal room with 12' minimum ceiling	1400 sq. ft.

a. Fixed equipment -

1) Risers
2) Adequate electrical outlets
3) Tackboard - 48 sq. ft.
4) Chalkboard - 16 lineal feet

b. Finishes -

1) Acoustical treatment should be provided to reduce reverberation
2) Asphalt tile floor
3) Windows should be limited or omitted
4) High level of artificial light - 50 fc
5) Rooms should be located so that sound does not interfere with other recitation or study areas

c. Loose equipment -

1) Director's stand
2) Seventy-five music stands
3) Seventy-five folding chairs
4) Piano and bench

2. One music classroom 720 sq. ft.

a. Fixed equipment -

1) Chalkboard - 20 lineal feet
2) Adequate electrical outlets
3) Tackboard - 30 sq. ft.
4) Window blinds for normal light control

b. Finishes -

1) Acoustical ceiling
2) Painted block walls
3) Asphalt tile floor

c. Loose equipment -

1) Teacher's desk and chair
2) One 4-drawer file cabinet
3) Forty folding chairs

        4) One tape recorder
        5) One record player
        6) One piano and bench

3. One instrument storage room adjacent to the large rehearsal room — 600 sq. ft.

    a. Fixed equipment -

        1) Pigeonhole shelving storage for 75 separate instruments
        2) Storage cabinet for robes or uniforms

    b. Finishes -

        1) Painted block walls
        2) Asphalt tile floor

4. Two practice rooms adjacent to the large rehearsal area with non-parallel walls — 180 sq. ft.

    a. Fixed equipment -

        1) Electrical outlets for tape recorder and record player
        2) Glass panel in wall or door for teacher observation

    b. Finishes -

        1) Acoustical treatment
        2) Asphalt tile floor

5. Office and music library — 200 sq. ft.

    a. Fixed equipment -

        1) Storage cabinet and shelving for music and records
        2) Electrical outlets

    b. Finishes -

        1) Painted block walls
        2) Asphalt tile floor

c. Loose equipment -

  1) Teacher's desk and chair
  2) One 4-drawer file cabinet
  3) Work table

II. ADDITIONAL MUSIC SPACE AND EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. One instrumental rehearsal room - 12' minimum ceiling	1600 sq. ft.

Finish and equipment - same as rehearsal room for 500 pupil junior high school

DESIRABLE FEATURES TO BE CONSIDERED FOR THE MUSIC AREA IF FUNDS ARE AVAILABLE

1. Sink with running water and drinking fountain located within the music area
2. One additional piano and bench for the practice room
3. School should own the more expensive basic instruments

J. LIBRARY AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. Reading room located adjacent to the study hall	1250 sq. ft.

a. Fixed equipment -

Adjustable shelving around the walls

b. Finishes -

  1) Painted block walls
  2) Acoustical ceilings
  3) Asphalt tile floor
  4) Limited non-glare windows
  5) Adequate artificial lighting - 50 fc

c. Loose equipment -

  1) Charge out desk and chair
  2) Card index file for all titles

   3) Magazine rack
   4) Newspaper rack
   5) Dictionary stand
   6) Atlas stand
   7) Eight 6-student tables
   8) Forty-eight student chairs
   9) One 4-drawer file cabinet

2. One stackroom — 500 sq. ft.

   a. Fixed equipment -

      1) Adjustable shelving which combined with the shelving in the reading room will provide storage for 7,500 volumes
      2) Omit windows - provide 50 fc of light

   b. Finishes -

      1) Epoxy painted block walls
      2) Asphalt tile floor

   c. Loose equipment -

      One book truck

3. Book repair and workroom adjacent to the stackroom — 100 sq. ft.

   a. Fixed equipment -

      1) Sink with running water and work top along one wall
      2) Adequate light - 50 fc

   b. Finishes -

      1) Painted block walls
      2) Asphalt tile floor

   c. Loose equipment -

      1) Work table
      2) Two chairs
      3) Typewriter stand and chair

JJ. ADDITIONAL LIBRARY SPACE AND EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. Increase reading room from 1250 sq. ft. to 1875 sq. ft.
    - a. Loose equipment -
        - 1) Increase reading tables to twelve 6-student tables
        - 2) Increase student chairs to seventy-five chairs
2. Increase stackroom from 500 sq. ft. to 600 sq. ft.
    - a. Fixed equipment -

      Increase shelving in library and stackroom to accommodate 10,000 volumes
3. Office for library 200 sq. ft.
    - a. Fixed equipment -
        - 1) Glass panel between office and library
        - 2) Shelving for professional books and periodicals of librarian
    - b. Finishes -
        - 1) Painted block walls
        - 2) Asphalt tile floor
    - c. Loose equipment -
        - 1) Secretarial desk and chair
        - 2) Typewriter
        - 3) One 4-drawer file cabinet

DESIRABLE FEATURES TO BE CONSIDERED IN THE LIBRARY AREA IF FUNDS ARE AVAILABLE

1. Conference room adjacent to the library 300 sq. ft.

a. Fixed equipment -

   1) Separation from library above counter height by glass panel
   2) Shelving below counter height for books to be used in this area

b. Finishes -

   1) Painted block walls
   2) Asphalt tile floor

c. Loose equipment -

   Conference table and chairs to seat 8 to 10 students

2. Storage and repair room for audio-visual aids	200 sq. ft.

a. Fixed equipment -

   1) Shelves and cabinets for storing films, film strips, records, tapes, projectors and other audio-visual equipment
   2) Work table with electrical outlets for testing and repair of equipment

b. Finishes -

   1) Painted block walls
   2) Asphalt tile floor

3. Listening room for records and recordings	40 sq. ft.

a. Fixed equipment -

   1) Electrical outlets
   2) Glass panel in wall or door for observation
   3) Acoustical treatment

b. Finishes -

   1) Painted block walls
   2) Asphalt tile floor

c. Loose equipment -

1) One table
2) Two student chairs

K. STUDY HALL-LUNCHROOM AREA FOR 500 PUPIL JUNIOR HIGH SCHOOL

1. One combination study hall-lunchroom adjacent to library (lunchroom seating 250) 2700 sq. ft.

   a. Fixed equipment -

      1) Two refrigerated drinking fountains with glass fillers
      2) Tables and chairs to be used as study tables and to seat 250 pupils for lunches
      3) Chalkboard - 20 lineal feet
      4) Tackboard - 48 sq. ft.

   b. Finishes -

      1) Painted block walls
      2) Epoxy painted or glazed tile wainscot
      3) Vinyl floor
      4) Acoustical ceiling

   c. Loose equipment -

      1) Teacher's desk and chair
      2) One 4-drawer file cabinet

KK. ADDITIONAL EQUIPMENT FOR STUDY-HALL LUNCHROOM AREA FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. No additional space required

   c. Loose equipment -

      1) Increase lunchroom tables and chairs to seat 360 pupils for lunch
      2) Television set for large group instruction

DESIRABLE FEATURES TO BE CONSIDERED IN THE STUDY HALL-LUNCHROOM AREA IF FUNDS ARE AVAILABLE

1. A separate study hall located adjacent to the library (a separate lunchroom and kitchen could be located in another area of the building) 1800 sq. ft.

    a. Fixed equipment -

        1) Shelving for more common reference books
        2) Magazine rack
        3) Newspaper rack
        4) Tackboard - 48 sq. ft.
        5) Chalkboard - 15 lineal feet
        6) Adequate artificial lighting - 50 fc
        7) Television outlet

    b. Finishes -

        1) Acoustical ceiling
        2) Painted block walls
        3) Vinyl asbestos tile floor

    c. Loose equipment -

        1) Twenty-two 4-pupil tables
        2) Eighty-eight student chairs
        3) Teacher's desk and chair
        4) One 4-drawer file cabinet
        5) Television for group instruction

L. KITCHEN AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. A kitchen area calculated on the basis of 2-1/2 square feet per serving 1500 daily lunches including space for: 1250 sq. ft.

    Dry storage
    Cold storage
    General storage
    Food preparation

Serving line and counter within the kitchen area
Dish washer
Office
Employees wash room and toilet
Garbage cans

This area would be considered basic for a 500 pupil high school with 80% to 100% pupil participation in the lunch program. This space might be modified if the percentage of participation is modified or if the food were prepared in a central kitchen for all buildings

a. Fixed equipment -

1) One 36" range
2) One 3-deck oven
3) One 30 gallon steam kettle
4) One two compartment steamer
5) Ventilating hood over cooking and dish washing equipment
6) Vegetable peeler
7) Slicer
8) One 30 quart mixer
9) One serving counter with food warmer and sneeze bar
10) One soil dish counter
11) One pre-wash unit
12) One dish washer
13) One clean dish counter
14) One cook sink
15) One pot sink
16) Milk cooler
17) Two cook's tables
18) One water heater booster
19) One 40 cubic foot reach-in refrigerator
20) One combined walk-in cooler freezer with compressor
21) Service sink
22) Kitchen employees rest room and locker facilities
23) Can washing and garbage facilities

b. Finishes -

1) Sheet vinyl floor in food preparation, serving, dish washing and office area
2) Concrete floor in storage areas
3) Epoxy painted or glazed tile walls in food preparation, serving and dish washing area
4) Painted block walls in all other areas
5) Keenes cement plaster ceilings in food preparation, serving and dish washing area

c. Loose equipment -

1) Pots
2) Pans
3) Utensils
4) Dishes
5) Trays
6) Tableware with portable tray
7) Miscellaneous kitchen items
8) Single pedestal desk
9) One 4-drawer file cabinet

LL. ADDITIONAL SPACE AND EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL WITH 80% TO 100% PUPIL PARTICIPATION IN THE LUNCH PROGRAM

1. Increase total kitchen area space from 1250 sq. ft. to 1875 sq. ft.
2. Install second serving line
3. Forty gallon steam kettle in lieu of 30 gallon steam kettle

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. Increase size of steam kettle in 500 pupil school to 40 gallons and in 750 pupil school use two 30 gallon steam kettles in lieu of one 40 gallon kettle
2. Add one 70 cubic foot reach-through refrigerator
3. Disposal units where public sewage systems are available

M. GYMNASIUM-AUDITORIUM AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. One combination gymnasium-auditorium (suggested dimension 96' x 72') 6912 sq. ft.

   a. Fixed equipment -

      1) Six wood or metal basketball bank boards and baskets
      2) Wall, floor and ceiling mountings for physical education apparatus
      3) Mats on end walls of the gymnasium
      4) Two drinking fountains recessed near the corner - one in each end wall
      5) Adequate electrical outlets for cleaning, lighting, scoreboards, P. A. system, record players and television
      6) Movable curtain partition to separate floor into two teaching stations
      7) Minimum glass block panels in lieu of windows or eliminate exterior light
      8) Artificial lighting to prevent shadows (20 to 30-fc, 4 feet above floor)
      9) Movable bleachers or folding chairs to seat 500 pupils

   b. Finishes -

      1) Acoustical desk exposed beams
      2) Painted block walls
      3) Epoxy painted or glazed block exposed wainscot 72"
      4) Hardwood floors or floors of similar density
      5) Floor markings for various activities and games

   c. Loose equipment -

      1) Four tumbling mats - 5' x 10'
      2) Two climbing ropes
      3) One horizontal bar
      4) One parallel bar
      5) One portable blackboard - 4' x 6'

2. Boys and girls locker rooms - (600 sq. ft. each)	1200 sq. ft.

a. Fixed equipment -

1) Two hundred-fifty basket or storage lockers (each) 7-1/2" x 12" x 18"
2) (Girls) Forty dressing lockers 12" x 12" x 72"
3) (Boys) Sixty dressing lockers 12" x 12" x 72"
4) (Each) One drinking fountain
5) Stationary benches
6) (Each) Two lavatories and two mirrors
7) Two commodes
8) (Boys) Two urinals

b. Finishes -

1) Painted exposed block walls
2) Concrete floors
3) Keenes cement plaster ceilings

3. Boys and girls shower rooms - (150 sq. ft. each)	300 sq. ft.

a. Fixed equipment -

1) Eight gang type shower heads with thermostatic control
2) Girls shower rooms should have two individual shower stalls
3) Soap receptacles or liquid soap dispensers between each two shower heads

b. Finishes -

1) Glazed tile walls
2) Keenes cement plaster ceilings
3) (Quarry tile non-glazed) or terrazzo floors

4. Boys and girls drying rooms - (150 sq. ft. each)	300 sq. ft.

b. Finishes -

1) Glazed tile walls
2) Non-glazed tile or terrazzo floors

5. Boys and girls instructor's office - (80 sq. ft. each) 160 sq. ft.

    a. Fixed equipment -

        Glass panel to observe playing area or locker room

    b. Finishes -

        1) Painted block walls
        2) Vinyl asphalt tile floor

    c. Loose equipment -

        1) Two teacher's desks and chairs
        2) Two 4-drawer file cabinets

6. Physical education equipment storage rooms - (150 sq. ft. each) located adjacent to the locker rooms 300 sq. ft.

    a. Fixed equipment -

        Racks or shelving for storage

    b. Finishes -

        1) Painted block walls
        2) Concrete floor

7. Gymnasium equipment storage room adjacent to gymnasium floor 240 sq. ft.

    b. Finishes -

        1) Painted block walls
        2) Concrete floor

8. Stage in connection with gymnasium including dressing rooms and stage equipment storage area 1248 sq. ft.

    a. Fixed equipment -

        1) Front curtain with valance, cyclorama and 2 border curtains

   2) Minimum stage lighting
   3) Selective non-dimming panel board for stage and auditorium lights

b. Finishes -

   1) Painted block walls
   2) Wood floor on stage
   3) Asphalt tile floor in the dressing room

MM. ADDITIONAL EQUIPMENT FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. Two hundred-fifty additional storage lockers 7-1/2" x 12" x 18"
2. Increase seating in gymnasium to 750

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1.	A separate auditorium to seat at least one-half of the student body (6-8 sq. ft. per seat). This feature should be given special consideration if the school program includes large group instruction. It becomes more desirable as the enrollment reaches or passes 750. The stage as shown above would be deleted from the gymnasium and, with revisions, be incorporated into the auditorium	
2.	Enlarge gymnasium area to 94' x 100'	9400 sq. ft.
3.	One physical activity instruction room with 18' ceiling for 750 pupil school	800 to 1500 sq. ft.

a. Fixed equipment -

   1) Floor wall and ceiling mountings for apparatus
   2) Windows should be minimum or omitted
   3) Adequate light to avoid shadows 20 to 30-fc, 4 feet above the floor

b. Finishes -

   1) Painted block walls
   2) Hardwood floor
   3) Floor markings for instructional purposes

4. Sound proof folding door in lieu of dividing curtain
5. Epoxy painted or glazed tile exposed walls in locker rooms
6. Additional tumbling and wrestling mats and other gymnastic equipment
7. Folding bleachers - seating capacity 1,000 spectators
8. Five hundred additional folding chairs
9. Additional stage lighting and dimming equipment
10. (750 Pupil High School) - Increase the shower and locker room area by 20%
11. Toilet, shower and storage space adjacent to instructor's office

N. HEATING AND MECHANICAL AREA FOR A 500 PUPIL JUNIOR HIGH SCHOOL

1. SIZE - Adequate to provide space and equipment needed for ultimate enrollment of building, dependent upon type of heating — 750 sq. ft.

   a. Fixed equipment -

      1) Equipment necessary to meet the needs of the present enrollment of the building (dependent upon type of heating used)
      2) Self-closing fire doors to meet the Ohio Building Code
      3) Automation controls of equipment limited to the essentials

   b. Finishes -

      Fire-proof concrete ceiling walls and floors

   c. Fuel storage if needed

NN. HEATING ROOM AREA FOR A 750 PUPIL JUNIOR HIGH SCHOOL

1. SIZE - — 850 sq. ft.

   Equipment and finishes same as above

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

Incinerator for disposal of waste

O. CUSTODIAL FACILITIES FOR A 500 OR 750 PUPIL JUNIOR HIGH SCHOOL

1. Work room and custodial storage area adjacent to the boiler room and receiving area 300 sq. ft.

    b. Finishes -

        1) Concrete ceiling and floor
        2) Concrete block walls

    c. Loose equipment -

        1) One wet and dry pick-up vacuum
        2) One scrubbing machine
        3) Janitor's work bench

2. Two or more small janitorial storage areas with janitor's service sink for cleaning equipment should be strategically located within the building - (30 sq. ft. each) 60 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. Storage room at grade level for lawn and outdoor equipment 80 sq. ft.
2. Additional small storage rooms for janitorial cleaning equipment - (30 sq. ft. each)

P. TOILET ROOMS FOR A 500 TO 750 PUPIL JUNIOR HIGH SCHOOL

1. Two boys toilets - 300 sq. ft. x 2 = 600 sq. ft.

a. Fixed equipment in (Each) -

1) Three water closets - wall hung. Stalls without doors
2) Eight urinals - wall hung
3) Two lavatories with soap dispenser
4) Two mirrors
5) Book shelf

b. Finishes -

1) Keenes cement plaster ceilings
2) Epoxy painted block or glazed tile walls
3) Terrazzo floors

2. Two girls toilets - 300 sq. ft. x 2 = 600 sq. ft.

a. Fixed equipment in (Each) -

1) Seven water closets - wall hung. Stalls with doors
2) Two lavatories
3) Two mirrors
4) Book shelf

b. Finishes -

Same as boys toilets

3. One faculty mens toilet adjacent to the faculty room 24 sq. ft.

a. Fixed equipment -

1) Water closet
2) Urinal
3) Lavatory
4) Mirror

b. Finishes -

1) Plaster ceiling
2) Epoxy painted or glazed tile walls
3) Vinyl or ceramic tile floor

4. One faculty womens toilet adjacent to the faculty room — 45 sq. ft.

   a. Fixed equipment -

      1) Two water closets
      2) Lavatory
      3) Mirror

   b. Finishes -

      Same as mens toilets

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. One toilet located within the administration area. Corridor or double door entrance should be provided — 30 sq. ft.

Q. CORRIDORS AND ENTRANCE WAYS

500 pupil buildings - 9 foot width = approximately	3800 sq. ft.
750 pupil buildings - 10 foot width = approximately	4200 sq. ft.

a. Fixed equipment -

   1) Twelve inch clothing locker for each two pupils
   2) Limited display cases

b. Finishes -

   1) Acoustical ceilings
   2) Epoxy painted block or glazed tile exposed walls
   3) Vinyl asphalt tile floors

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. Terrazzo floors
2. Some decorative walls at the main entrance

3. Additional display cases at strategic points

R. MAIN DRIVEWAYS AND WALKS

1. Main driveway to bus loading entrances
   - a. Driveway sufficiently wide for two buses to pass unless a one-way loop
   - b. Driveway and parking area should provide space so that school buses can be turned around without the necessity of backing the school bus on the school grounds
   - c. Driveway and bus loading area should be constructed of 8" of crushed stone and 3" of blacktop coating
   - d. Parking lot space should be provided for 200 cars
   - e. Parking area should be constructed with a minimum of 8" of crushed stone
   - f. Driveway should extend to the receiving area for janitorial supplies, kitchen and shop
   - g. Driveway should not encircle the building
2. Walkways
   - a. Eight foot concrete walks should lead from the bus loading area to the main entrance
   - b. Six foot concrete walks should lead from the driveway or parking lot to all other entrances

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. Covered walkway for bus loading area
2. Blacktop parking lot
3. Additional blacktop outdoor playing space (1,000 to 2,000 sq. ft.)
4. Additional parking space to provide for a total of 500 cars should be considered

S. ELECTRICAL EQUIPMENT

1. P. A. system for administrative and instructional purposes

   a. Console with selective switches in administrative area or speech instruction area
   b. Two-way speakers in each teaching station
   c. Conduit large enough to carry television wiring

2. Electrical clock and program system

   a. Master clock in administrative area
   b. Clock with program signal in each teaching station and boiler room
   c. Clock in each main corridor
   d. Playground program signal bell or horn outdoors

3. Electrical fire alarm system to meet requirements of the Ohio Building Code

DESIRABLE FEATURES TO BE CONSIDERED IF FUNDS ARE AVAILABLE

1. Television antenna, wiring and receivers
2. Am and Fm radios and record players in P. A. console
3. Remote control unit microphone and amplifier for P. A. system in (a) music room, (b) auditorium-gymnasium

CHAPTER VI

HIGH SCHOOL AND SENIOR HIGH SCHOOL BUILDINGS

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A. SIZE - An adequate educational program and services cannot be provided economically in a four year high school (grades 9 to 12) or a senior high school (grades 10 to 12) with an enrollment of less than 500 pupils. Basic requirements are calculated for a 500 pupil enrollment.

B. SITE -

1. Twenty acres plus one acre for each 100 pupils (500 pupils = 25 acres). This recommendation may have to be modified because of excessive cost.
2. Located near center of population of the area to be served.
3. Located away from main traffic routes and other noise sources.
4. Good access roads for transportation of pupils.
5. Site should be above flood plane, well drained, and with satisfactory soil conditions to support foundations.
6. Access to utilities including an adequate water supply.
7. Planning should include site improvement.

C. ADMINISTRATIVE AREA - (500 PUPILS)

1. Outer reception office and filing space — 400 sq. ft.

   a. Fixed equipment -

      1) Office counter with storage space and/or file space below
      2) Master time and program clock
      3) P. A. console (May be located in speech instruction area)
      4) Wardrobe storage - 10 sq. ft.
      5) Tackboard - 16 sq. ft.
      6) Window blinds for normal light control

   b. Finishes -

      1) Vinyl asbestos tile floors
      2) Painted block walls
      3) Acoustical ceilings

   c. Loose or movable equipment -

      1) Secretarial desk with chair
      2) Typewriter
      3) Six office chairs
      4) Pupil personnel file cabinets
      5) Work table
      6) One adding machine or tape calculator

2. Principal's office — 200 sq. ft.

   a. Fixed equipment -

      1) Wardrobe storage - 10 sq. ft.
      2) Window blinds for normal light control
      3) Shelving or bookcase for professional books or periodicals

   b. Finishes -

      1) Vinyl tile floors
      2) Painted block walls
      3) Acoustical ceilings

c. Loose or movable equipment -

1) Executive desk with chair
2) Bookcase
3) One 4-drawer file cabinet
4) Work table
5) Four side chairs

3. Clinic including sick rooms. One 22' dimension suggested 400 sq. ft.

a. Fixed equipment -

1) Lavatory
2) Toilet
3) Window blinds for normal light control

b. Finishes -

1) Vinyl tile floors
2) Painted block walls and glazed block or epoxy painted wainscots
3) Acoustical ceilings

c. Loose or movable equipment -

1) Teacher's desk with chair
2) Three student chairs
3) One 4-drawer file cabinet
4) Two recovery cots
5) Weight scale with measuring rod
6) Movable screen
7) Dispensary cabinet
8) Eye chart

4. Workroom 200 sq. ft.

a. Fixed equipment -

1) Shelving
2) Sink with work counter top - 8 sq. ft.
3) Window blinds for normal light control

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Work table
2) Three student chairs - adult size
3) Liquid duplicator with cabinet
4) Mimeograph with cabinet and mimeoscope
5) Two supply cabinets

5. Faculty room 200 sq. ft.

a. Fixed equipment -

1) Faculty toilets with entrances from corridor
2) Window blinds for normal light control
3) Tackboard - 16 sq. ft.

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) One lounge
2) Two lounge chairs
3) Two work tables
4) Six office chairs

6. Guidance offices - (2 @ 100 sq. ft.) 200 sq. ft.

a. Fixed equipment -

1) Tackboard - 16 sq. ft.
2) Display rack
3) Window blinds for normal light control

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose or movable equipment -

1) Teacher's desk with chair for each office
2) Three student chairs for each office
3) One 4-drawer file cabinet for each office

7. Book and storage room	300 sq. ft.

a. Fixed equipment -

1) Shelving on three walls with adjustable shelves
2) Supply cabinet

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Exposed deck ceiling

c. Loose or movable equipment -

One work table

CC. ADDITIONAL ADMINISTRATIVE AREA FOR A 750 PUPIL HIGH SCHOOL - GRADES 9 TO 12 OR A SENIOR HIGH SCHOOL - GRADES 10 TO 12

1. Two rooms 100 sq. ft. each with similar finishes and equipment for guidance and pupil personnel services	200 sq. ft.
2. An assistant or vice principal's office with similar finishes and equipment as listed for the principal's office	180 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE ADMINISTRATIVE AREA IF FUNDS ARE AVAILABLE

1. Glazed tile or epoxy painted wainscots in all rooms except the storage areas

2. Drapes for light control in principal's office
3. Vinyl tile floors in lieu of asphalt tile
4. Conference room near principal's office 400 sq. ft.

D. ACADEMIC CLASSROOMS FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Ten academic classrooms – (720 sq. ft. each). This calculation is based on a ratio of one classroom to 50 pupils for an eight period day 7200 sq. ft.

   a. Fixed equipment –

      1) Shelving and work counter top along one wall with unit ventilators
      2) Chalkboard – 30 lineal feet
      3) Tackboard – 48 sq. ft.
      4) Teacher's wardrobe and storage cabinet (10 sq. ft.)
      5) Window blinds for normal light control
      6) Student lockers located in the corridors. (One locker for each 2 students)

   b. Finishes –

      1) Asphalt tile floors
      2) Painted block walls
      3) Acoustical ceilings

   c. Loose equipment –

      1) Teacher's desk with chair
      2) One 4-drawer file cabinet
      3) Thirty student chair desks or study top desks

DD. ADDITIONAL ACADEMIC CLASSROOMS FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Five academic classrooms with similar finish and equipment based on a ratio of one room to 50 pupils 3600 ~~4320~~ sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED IN THE ACADEMIC CLASSROOMS

1. Glazed tile or epoxy painted wainscots (If funds are available)
2. English rooms and social science rooms should be grouped together with two or more of the rooms separated by a folding partition so that the rooms can be enlarged for large group instruction
3. One room could include a raised platform at one end for dramatics and public speaking
4. Art Room. If funds are available, consideration should be given to the planning of a separate laboratory type art room. The desirability of such a facility in a high school depends on the school's curriculum and plan of operation. If art is scheduled as a separate subject and if the course of study calls for considerable art equipment, a special room with the necessary storage space will probably be needed. Size and arrangement will vary with the planned use. A minimum of 1,000 sq. ft. is suggested — 1000 sq. ft.

    a. Fixed equipment should include a sink, hot and cold water, adequate counter and shelf space, chalkboard, tackboard and satisfactory lighting

    b. Loose equipment is not listed due to program variations

E. SCIENCE LABORATORIES - 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. One combination chemistry-physics laboratory	1080 sq. ft.
One storage room	120 sq. ft.
One preparation room	120 sq. ft.

a. Fixed equipment -

1) Demonstration desk with sink, running water, electrical service, gas service and fume exhaust system

2) Combination chemistry-physics tables with sinks, running water, electrical service including provision for variable power supply and gas service for 24 pupil work stations
3) Wall cabinets for storage and display in the laboratory
4) Shelving in the storage room and preparation room
5) Work counter top (16 sq. ft.) with sink, running water, electrical service and gas service
6) Window blinds for normal light control
7) Darkening shades for visual equipment
8) Chalkboard - 15 lineal feet
9) Tackboard - 32 sq. ft.

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Teacher's desk with chair
2) Twenty-four tablet arm chairs or chair desks for lecture area
3) Twenty-five stools
4) One slide and film strip projector
5) One micro projector
6) Two microscopes

2. One biology laboratory	1080 sq. ft.
One storage room	120 sq. ft.
One preparation room	120 sq. ft.

a. Fixed equipment -

1) Demonstration desk with sink, running water, electrical service and gas service
2) Wall cabinets for storage and display with laboratory
3) Shelving in the storage room and preparation room

4) Work counter top (16 sq. ft.) with sink, running water, electrical service and gas service in the preparation room
5) Aquarium in the laboratory
6) Window blinds for normal light control
7) Darkening shades for use of visual aid equipment
8) Chalkboard - 20 lineal feet
9) Tackboard - 32 sq. ft.

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Teacher's desk with chair
2) Student tables with chairs for 30 pupils
3) One micro projector
4) One slide and film strip projector
5) Two microscopes

3. One general science laboratory	1080 sq. ft.
One storage room	120 sq. ft.
One preparation room	120 sq. ft.

a. Fixed equipment -

1) Demonstration desk with sink, running water, electrical service and gas service
2) Work counter top (16 sq. ft.) with sink, running water, electrical service and gas service in the preparation room
3) Shelving in the storage rooms and preparation room
4) Wall cabinets for storage and display in the laboratory
5) Window blinds for normal light control
6) Darkening shades for visual equipment
7) Chalkboard - 20 lineal feet
8) Tackboard - 32 sq. ft.

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Student tables with chairs for 30 pupils
2) One slide and film strip projector
3) Teacher's desk with chair
4) Two micro projectors

EE. ADDITIONAL SPACE WITH SIMILAR FINISHES AND EQUIPMENT FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1.	One chemistry laboratory	1080 sq. ft.
2.	One biology laboratory	1080 sq. ft.
3.	One general science laboratory	1080 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED FOR THE SCIENCE AREA IF FUNDS ARE AVAILABLE

1. Additional microscopes
2. Models and specimens
3. Charts
4. Glazed block or epoxy painted wainscots
5. Connections at student tables in chemistry laboratories for exhausting fumes

F. HOME ECONOMICS SPACE AND EQUIPMENT FOR A 500 PUPIL HIGH SCHOOL

1. Foods classroom 1200 sq. ft.

a. Fixed equipment -

1) 6 Unit kitchens (each unit kitchen includes)
8-10 lineal feet of work surface exclusive of sink and stove
1 Stove
1 Double sink

Base cabinets - 12-14 lineal feet
Wall cabinets - 7-9 lineal feet

2) Storage cabinets - 9-11 lineal feet
   - 2 General storage
   - 1 Apron storage
   - 1 Cleaning cabinet
3) Book shelves
   12 inch shelving to store pupil books (24 pupils)
4) Chalkboard - 10 lineal feet - located for teaching center
5) Tackboard - 10 lineal feet

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) 24 Student chairs
2) 6 Multi-purpose tables (four students per table)
3) 1 Refrigerator with freezing compartment
4) 1 Washer
5) 1 Dryer
6) 1 Teacher's desk
7) 1 Chair
8) 1 4-drawer file cabinet, legal size
   Small equipment (adequate for teaching foods on a meal planning basis)
   See equipment list prepared by Vocational Home Economics Section, State Department of Education

2. Clothing classroom 1200 sq. ft.

a. Fixed equipment -

1) Storage cabinets - 32 lineal feet
   - 2 Storage cabinets for 100 tote trays
   - 2 Wardrobe cabinets
   - 1 Cabinet for pressing equipment
   - 1 Sink cabinet or laboratory

- 2 General storage cabinets - 7' high, 4' to 8' wide
- 2 Cabinets (36" high)

2) Storage for books and child development materials
3) Darkening shades for visual aids
4) 1 Triple mirror either on door cabinets or wall
5) 12 Inch shelving to store pupil books (24 pupils)
6) Chalkboard - 13 lineal feet - located for teaching center
7) Tackboard - 10 lineal feet

b. Finishes -

1) Vinyl tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) 24 Student chairs
2) 6 Tables (42" x 60") - for 24 students
3) 9 to 12 sewing machines (do not recommend self-contained sewing machine tables)
4) 3 Ironing boards
5) 2 Folding screens
6) 1 Teacher's desk and chair
7) 1 4-drawer file cabinet

Small equipment needed for teaching clothing construction
See small equipment list prepared by Vocational Home Economics, State Department of Education

3. Design suggestions

a. Arrange home economics space as a suite
b. Foods and clothing rooms that are square rather than rectangular are more easily adapted to the installation of large fixed equipment

4. High schools with limited enrollment in home economics

In determining the need for home economics facilities careful consideration should be given to the probable enrollments and the number of teaching stations that will be required. A senior or four year high school that serves an area where a high percentage of the students are college bound, may find that a one teacher department will suffice. Other factors may limit the enrollment. In such cases consideration may be given to a single teaching station

ONE COMBINATION LABORATORY 1400 - 1800 sq. ft.

Four to six unit kitchens and equipment for foods, clothing and home management instruction from the above lists should be provided

DESIRABLE FEATURES TO BE CONSIDERED FOR HOME ECONOMICS AREA FOR A 500 PUPIL HIGH SCHOOL IF FUNDS ARE AVAILABLE

1. 1-Mobile demonstration cabinet equipped with overhead mirror
2. 1-Walk-in storage - 75-100 sq. ft. 100 sq. ft.
3. Family living area as part of clothing room separated by a multi-fold door so that the clothing area and family living area can be thrown together for large group work or separated for small activities. 200-300 sq. ft. additional space added to clothing room with additional equipment for family living area as follows: 300 sq. ft.

1	Drop leaf table
1	Davenport and chair
	Book shelves and magazine storage
2	Storage cabinets, 4-8 lineal feet
2	Storage cabinets, 36" high

FF. HOME ECONOMICS SPACE AND EQUIPMENT FOR A 750 PUPIL HIGH SCHOOL

1. Food classroom 1200 sq. ft.

   Same space and equipment as listed in 500 pupil high school

2. Clothing classroom 1200 sq. ft.

   Same equipment as listed in 500 pupil high school

3. Family living classroom — 720 - 900 sq. ft.

   a. Fixed equipment -

      1) Storage (4-8 lineal feet)
      2) Low storage (36"), (4-8 lineal feet)
      3) 1 Storage cabinet equipped with sliding chalkboard and tackboard to provide storage for books and charts

   b. Finishes -

      1) Vinyl tile floors
      2) Painted block walls
      3) Acoustical ceilings

   c. Loose equipment -

      1) 24 Table and arm chairs (stored when not in use)
      2) 1 Teacher's desk and chair
      3) 1 4-drawer file cabinet

      Small equipment for teaching child development, home furnishings, etc.
      See small equipment list prepared by Vocational Home Economics Section, State Department of Education

4. Design suggestions

   a. Arrange home economics space as a suite
   b. Foods and clothing rooms that are square rather than rectangular are more easily adapted to the installation of large fixed equipment

DESIRABLE FEATURES TO BE CONSIDERED FOR HOME ECONOMICS AREA FOR A 750 PUPIL HIGH SCHOOL IF FUNDS ARE AVAILABLE

1. 1-Mobile demonstration cabinet equipped with overhead mirror
2. 1-Walk-in storage - 75 to 100 sq. ft. — 100 sq. ft.
3. Family living room furniture

   1 Drop leaf table

Book shelves
Davenport and chairs for homelike atmosphere

G. INDUSTRIAL ARTS AREA FOR 500 PUPIL HIGH SCHOOL AND SENIOR HIGH SCHOOL

1. Industrial arts shop including project storage, material storage, finishing room, offices and wash up facilities 2400 ~~2000~~ sq. ft.

   a. Fixed equipment -

      Wood Working Area

      1) Three lathes - combination wood and metal
      2) One pedestal grinder
      3) One disc sander
      4) One tilting arbor saw
      5) One 8" jointer
      6) One 14" band saw
      7) One variable speed drill press
      8) Four 4-station benches with lockers and vises
      9) One 24" jig saw
      10) One 12" planer
      11) Good artificial light to meet Ohio Building Code

      Electrical Area

      One electrical test bench with lockers below to provide six pupil work stations

      General Metals Area

      1) Vertical mill
      2) Two 10" lathes
      3) One 1/2" drill
      4) Pedestal grinder
      5) Gas forge
      6) Squaring shear
      7) Slip roll
      8) Combination brake and folder
      9) Two gas soldering furnaces
      10) Melting furnace

11) One 70 pound anvil
12) Molders bench
13) Combination sheet metal bench
14) Metal working bench
15) Sheet metal bench with stake plate and stakes
16) Oxy-acetyline welding outfit
17) Combination metal band saw
18) Horizontal mill

Construction Features or Special Equipment

1) Dust collector
2) Paint spray cabinet with exhaust system for finish room
3) Overhead exterior door
4) Overhead power strips

b. Finishes -

1) Concrete floors
2) Painted block walls
3) Exposed deck ceilings
4) Skylights or limited windows - sill height 6'

c. Loose equipment -

1) Two metal benches with 4 vises
2) Miscellaneous hand tools
3) Teacher's desk and chair for office
4) One 4-drawer file cabinet

2. Drawing room 840 sq. ft.

a. Fixed equipment -

High level of artificial light

b. Finishes -

1) Vinyl asbestos tile floor
2) Painted block walls
3) Exposed deck ceiling

c. Loose equipment -

1) Twenty drawing tables with board storage
2) Twenty stools
3) Twenty drawing boards
4) Twenty tee squares
5) Teacher's table with stool
6) One 4-drawer file cabinet

DESIRABLE FEATURES TO BE CONSIDERED FOR THE INDUSTRIAL ARTS AREA FOR A 500 PUPIL HIGH SCHOOL IF FUNDS ARE AVAILABLE

General Metals Area

1. One 10" lathe
2. Power hacksaw
3. Arc welding outfit

Graphic Arts Area

1. Two pilot presses
2. One double tier type cabinet
3. One proof press
4. One imposing stone
5. One materials cabinet
6. One silk screen bench
7. One book binding bench
8. One paper cutter
9. One platen press
10. Miscellaneous equipment for above items

Construction Features

1. Glazed tile, common brick or epoxy painted wainscots
2. Acoustical ceilings
3. Fume exhaust system for hot metals area

GG. ADDITIONAL SPACE FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1.	One industrial arts shop including storage and office	2000 sq. ft.

a. Fixed equipment -

1) Equip as listed under Item G and as listed under desirables for a 500 pupil high school
2) No additional equipment would be needed except a teacher's desk, chair and a 4-drawer file cabinet. The areas of instruction would be divided between the two shops

H. BUSINESS EDUCATION AREA FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1.	One typewriting and shorthand laboratory	900 sq. ft.
2.	One bookkeeping and office practice laboratory	900 sq. ft.

a. Fixed equipment -

1) Electrical outlets in floor of typing area
2) Electrical outlets in office practice area
3) Work counter top for business machines along one wall with storage below in bookkeeping laboratory
4) Window blinds for normal light control
5) Wall of chalkboard - 27 lineal feet in each room
6) Tackboard - 48 sq. ft. in each room
7) Storage area - 60 sq. ft.
8) Connecting door between two rooms

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Thirty-two typewriters
2) Thirty typing desks for typing and/or shorthand with chairs
3) Two each of adding machines, rotary calculation and key driven calculators for office practice area
4) Student desks or tables with chairs in bookkeeping area for 30 pupils

5) Six chairs for office practice area
6) One dictation and transcription unit
7) One liquid duplicator with stand
8) One mimeograph with stand and mimeoscope
9) Two teacher's desks with chairs
10) Six 4-drawer file cabinets

HH. BUSINESS EDUCATION AREA FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. One typewriting and shorthand laboratory	900 sq. ft.
2. One bookkeeping and general use laboratory	900 sq. ft.
3. One office practice and business machines laboratory	900 sq. ft.

a. Fixed equipment -

1) Electrical outlets in floor of typing laboratory
2) Electrical outlets in floor of office practice laboratory
3) Shelving with work counter top on one wall of bookkeeping laboratory
4) Window blinds for normal light control
5) One sink with work counter top and shelving below on one wall of office practice laboratory
6) One wall of chalkboard - 27 lineal feet in each room
7) Tackboard - 48 sq. ft. in each room
8) Storage area in each room - 60 sq. ft.
9) Connecting door between the three rooms

b. Finishes -

1) Asphalt tile floors
2) Painted block walls
3) Acoustical ceilings

c. Loose equipment -

1) Typing, shorthand and bookkeeping equipment would be the same as listed for 500 pupil high schools

2) For office practice and business machines laboratory
    a) Twenty-four business machine desks with chairs
    b) Two bookkeeping desks with chairs
    c) Secretarial desk with chair
    d) Four each of adding machines and rotary calculators - two key driven and two printing calculators
    e) Two combination dictation-transcription units and one transcription unit

3) Three teacher's desks with chairs
4) Three 4-drawer file cabinets

DESIRABLE FEATURES THAT SHOULD BE CONSIDERED FOR THE BUSINESS EDUCATION AREA IF FUNDS ARE AVAILABLE

1.	Vinyl asbestos tile floors in lieu of asphalt tile	
2.	Glazed tile or epoxy painted wainscots	
3.	One sink with work counter top (16 sq. ft.) in 500 pupil school	
4.	Increase size of typing and bookkeeping rooms from 900 to 1000 sq. ft. each	2000 sq. ft.
5.	Additional equipment based on sound educational specifications to meet local needs	
6.	Office and storage space in 500 and 750 pupil high schools	500 sq. ft.
7.	Additional commercial room in the 500 pupil high school to provide separate facilities for bookkeeping and general business education	1200 sq. ft.
8.	Establish one-third of typewriters as electric	

I. MUSIC FACILITIES FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

The music area for all schools should be planned as a unit so as to secure efficiency in the use of teacher time and of equipment. The rehearsal and practice areas should be removed from the regular academic and study areas of the school. It is desirable to provide convenient access to the auditorium or gymnasium stage and to the athletic field

1. One combination vocal and instrumental rehearsal room with 14 foot ceilings — 1600 sq. ft.

    a. Fixed equipment -

        1) Risers
        2) Adequate electrical outlets
        3) High level of artificial light, 50 fc - windows should be limited or omitted
        4) Tackboard - 48 sq. ft.
        5) Chalkboard - 16 lineal feet

    b. Finishes -

        1) Asphalt tile floors
        2) Acoustical treatment to walls and ceilings to reduce reverberation

    c. Loose equipment -

        1) Director's stand
        2) Sixty music stands
        3) Sixty folding chairs
        4) Piano with bench

2. One music classroom — 720 sq. ft.

    a. Fixed equipment -

        1) Adequate electrical outlets
        2) Chalkboard - 20 lineal feet
        3) Tackboard - 32 sq. ft.
        4) Work counter top with shelving below along one wall with unit ventilator

    b. Finishes -

        1) Asphalt tile floors
        2) Painted block walls
        3) Acoustical ceilings

    c. Loose equipment -

        1) Forty tablet arm chairs
        2) One tape recorder

3) One record player
4) One piano with bench
5) Teacher's desk with chair
6) One 4-drawer file cabinet

3. One instrument storage room adjacent to the large rehearsal room — 600 sq. ft.

   a. Fixed equipment -

      1) Two doors to permit one-way traffic
      2) Pigeonhole shelving storage for 75 separate instruments
      3) Large compartments for large instruments

   b. Finishes -

      1) Asphalt tile floors
      2) Painted block walls

4. One uniform storage room — 200 sq. ft.

   a. Fixed equipment -

      Cabinets for safe storage of band uniforms and choral robes

   b. Finishes -

      1) Asphalt tile floors
      2) Painted block walls

5. Two practice rooms adjacent to the large rehearsal room - 90 sq. ft. each — 180 sq. ft.

   a. Fixed equipment -

      1) Electrical outlets
      2) Glass in door or wall for teacher observation
      3) Non-parallel walls

   b. Finishes -

      1) Asphalt tile floors
      2) Acoustical treatment to walls and ceilings

6. Office and library adjacent to the large rehearsal room 200 sq. ft.

   a. Fixed equipment -

      1) Storage cabinet and shelving for music and records
      2) Electrical outlets

   b. Finishes -

      1) Painted block walls
      2) Asphalt tile floor

   c. Loose equipment -

      1) Teacher's desk and chair
      2) One 4-drawer file cabinet
      3) Work table

I. ADDITIONAL MUSIC SPACE FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. One instrumental rehearsal room with 14' ceilings 1600 sq. ft.

   Equipment and finishes - same as rehearsal room for 500 pupil high school

DESIRABLE FEATURES TO BE CONSIDERED FOR THE MUSIC AREA IF FUNDS ARE AVAILABLE

1. Enlarge the area of the rehearsal room to 2000 sq. ft.
2. Sink with running water and drinking fountain located within the music area
3. One additional piano and bench for the practice room
4. School should own the more expensive basic instruments

J. LIBRARY AREA FOR 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Reading room with perimeter shelving located adjacent to the study hall 1250 sq. ft.

- a. Fixed equipment -

  Adjustable shelving on walls

- b. Finishes -
  1) Painted block walls
  2) Acoustical ceilings
  3) Asphalt tile floors
  4) Limited non-glare windows
  5) Adequate artificial lighting, 50 fc

- c. Loose equipment -
  1) Charge out desk and chair
  2) Card index file for all titles
  3) One magazine rack
  4) One newspaper rack
  5) One dictionary stand
  6) One atlas stand
  7) Eight 6-student tables
  8) Forty-eight student chairs
  9) One 4-drawer file cabinet

2. One stackroom — 500 sq. ft.

- a. Fixed equipment -
  1) Adjustable shelving which combined with the shelving in the reading room will provide storage for 7,500 volumes
  2) Omit windows, provide 50 fc of light

- b. Finishes -
  1) Painted block walls
  2) Asphalt tile floors

- c. Loose equipment -

  Book truck

3. Book repair and workroom adjacent to the stackroom — 100 sq. ft.

a. Fixed equipment -

1) Sink with running water and work top along one wall
2) Adequate light, 50 fc

b. Finishes -

1) Painted block walls
2) Asphalt tile floors

c. Loose equipment -

1) Work table
2) Two chairs
3) Typewriter stand and chair

JJ. ADDITIONAL LIBRARY SPACE AND EQUIPMENT FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Increase reading room to	1875 sq. ft.

a. Loose equipment -

1) Increase reading tables to twelve 6-student tables
2) Increase student chairs to seventy-five chairs

2. Increase stackroom to	600 sq. ft.

a. Fixed equipment -

Increase shelving in library and stackroom to accommodate 10,000 volumes

3. Office for library	200 sq. ft.

a. Fixed equipment -

1) Glass panel between office and library
2) Shelving for professional books and periodicals of librarian

b. Finishes -

1) Painted block walls
2) Asphalt tile floors

c. Loose equipment -

1) Secretarial desk and chair
2) Typewriter
3) One 4-drawer file cabinet

DESIRABLE FEATURES TO BE CONSIDERED IN THE LIBRARY AREA IF FUNDS ARE AVAILABLE

1. Conference room adjacent to the library	300 sq. ft.

a. Fixed equipment -

1) Separation from library above counter height by glass panel
2) Shelving below counter height for books to be used in this area

b. Finishes -

1) Painted block walls
2) Asphalt tile floors

c. Loose equipment -

Conference table and chairs to seat 8 to 10 students

2. Storage and repair room for audio-visual aids	200 sq. ft.

a. Fixed equipment -

1) Shelves and cabinets for storing films, film strips, records, tapes, projectors and other audio-visual equipment
2) Work table with electrical outlets for testing and repair of equipment

b. Finishes -

1) Painted block walls
2) Asphalt tile floor

3. Listening room for records and recordings 40 sq. ft.

a. Fixed equipment -

1) Electrical outlets
2) Glass panel in wall or door for observation

c. Loose equipment -

1) One table
2) Two student chairs

K. STUDY HALL-LUNCHROOM AREA FOR 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. One combination study hall-lunchroom adjacent to library (lunchroom seating 250) 2700 sq. ft.

a. Fixed equipment -

1) Two refrigerated drinking fountains with glass fillers
2) Tables and chairs to be used as study tables and to seat 250 pupils for lunches
3) Chalkboard - 20 lineal feet
4) Tackboard - 48 sq. ft.

b. Finishes -

1) Painted block walls
2) Epoxy painted or glazed tile wainscots
3) Vinyl floors
4) Acoustical ceilings

c. Loose equipment -

1) Teacher's desk and chair
2) One 4-drawer file cabinet

KK. ADDITIONAL EQUIPMENT FOR STUDY HALL-LUNCHROOM FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. No additional space required

   c. Loose equipment -

      1) Increase lunchroom tables and chairs to seat 360 pupils for lunch
      2) Television set for large group instruction

DESIRABLE FEATURES TO BE CONSIDERED IN THE STUDY HALL-LUNCHROOM AREA IF FUNDS ARE AVAILABLE

1. One separate study hall located adjacent to the library (lunchroom may be removed from the library area) 1800 sq. ft.

   a. Fixed equipment -

      1) Shelving for more common reference books
      2) One magazine rack
      3) One newspaper rack
      4) Tackboard - 48 sq. ft.
      5) Chalkboard - 15 lineal feet
      6) Adequate artificial lighting, 50 fc
      7) Television outlet

   b. Finishes -

      1) Acoustical ceiling
      2) Painted block walls
      3) Vinyl asbestos tile floor

   c. Loose equipment -

      1) Twenty-two 4-pupil tables
      2) Eighty-eight student chairs
      3) Teacher's desk and chair
      4) One 4-drawer file cabinet
      5) Television for group instruction

L. KITCHEN AREA FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Kitchen area calculated on the basis of 2-1/2 square feet per serving for 500 daily lunches including space for: 1250 sq. ft.

   Dry storage
   Cold storage
   General storage
   Food preparation
   Serving line and counter within the kitchen area
   Dish washer
   Office
   Employee wash room and toilet
   Garbage cans

   This area would be considered basic for a 500 pupil high school with 80% to 100% pupil participation in the lunch program. This space might be modified if the percentage of participation is modified or if the food were prepared in a central kitchen for all buildings

   a. Fixed equipment -

      1) One 36" range
      2) One 3-deck oven
      3) One 30 gallon steam kettle
      4) One two compartment steamer
      5) Ventilating hood over cooking and dish washing equipment
      6) Vegetable peeler
      7) Slicer
      8) One 30 quart mixer
      9) One serving counter with food warmer and sneeze bar
      10) One soil dish counter
      11) One pre-wash unit
      12) One dish washer
      13) One clean dish counter
      14) One cook sink
      15) One pot sink
      16) Milk cooler

17) Two cook's tables
18) One water heater booster
19) One combined walk-in cooler freezer with compressor
20) One 40 cubic foot reach-in refrigerator
21) Service sink
22) Kitchen employees rest room and locker facilities
23) Can washing and garbage facilities

b. Finishes -

1) Sheet vinyl floor in food preparation, serving, dish washing and office areas
2) Concrete floor in storage areas
3) Epoxy painted or glazed tile walls in food preparation, serving and dish washing areas
4) Painted block walls in all other areas
5) Keenes cement plaster ceilings in food preparation, serving and dish washing areas

c. Loose equipment -

1) Pots
2) Pans
3) Utensils
4) Dishes
5) Trays
6) Tableware with portable tray
7) Miscellaneous kitchen items
8) One single pedestal desk
9) One 4-drawer file cabinet

LL. ADDITIONAL SPACE AND EQUIPMENT FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL WITH 80% TO 100% PUPIL PARTICIPATION IN THE LUNCH PROGRAM

1. Increase total kitchen area space from 1250 sq. ft. to 1875 sq. ft.
2. Install second serving line
3. Forty gallon steam kettle in lieu of 30 gallon steam kettle

DESIRABLE FEATURES TO BE CONSIDERED FOR THE KITCHEN AREA IF FUNDS ARE AVAILABLE

1. Increase size of steam kettle in 500 pupil school to 40 gallons and in 750 pupil school use two 30 gallon steam kettles in lieu of one 40 gallon kettle
2. Add one 70 cubic foot reach-through refrigerator
3. Disposal units where public sewage systems are available

M. GYMNASIUM-AUDITORIUM AREA FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. One combination gymnasium-auditorium including playing floor and seating space, 22' ceiling	9400 sq. ft.

a. Fixed equipment -

1) Six wood or metal basketball bank boards and baskets
2) Wall, floor and ceiling mountings for physical education apparatus
3) Mats on end walls of the gymnasium
4) Two drinking fountains recessed near the corner - one in each end wall
5) Adequate electrical outlets for cleaning, lighting, scoreboards, P. A. system, record players and television
6) Movable curtain partition to separate floor into two teaching stations
7) Minimum glass block panels in lieu of windows or eliminate exterior light
8) Artificial lighting to prevent shadows (20 - 30 fc, 4 feet above floor)
9) Movable bleachers or folding chairs to seat 500 pupils

b. Finishes -

1) Acoustical deck exposed beams
2) Painted block walls
3) Epoxy painted or glazed block exposed wainscot 72"

4) Hardwood floors or floors of similar density
5) Floor markings for various activities and games

c. Loose equipment -

1) Four tumbling mats - 5' x 10'
2) Two climbing ropes
3) One horizontal bar
4) One parallel bar
5) One portable blackboard - 4' x 6'

2. Boys and girls locker rooms - (600 sq. ft. each) 1200 sq. ft.

a. Fixed equipment -

1) Two hundred-fifty basket or storage lockers (each) 7-1/2" x 12" x 18"
2) (Girls) Forty dressing lockers 12" x 12" x 72"
3) (Boys) Sixty dressing lockers 12" x 12" x 72"
4) (Each) One drinking fountain
5) Stationary benches
6) (Each) Two lavatories and two mirrors
7) Two commodes
8) (Boys) Two urinals

b. Finishes -

1) Painted exposed block walls
2) Concrete floors
3) Keenes cement plaster ceilings

3. Boys and girls shower rooms - (150 sq. ft. each) 300 sq. ft.

a. Fixed equipment -

1) Eight gang type shower heads with thermostatic control
2) Girls shower room should have two individual shower stalls
3) Soap receptacles or liquid soap dispensers between each two shower heads

b. Finishes -

1) Glazed tile walls
2) Keenes cement plaster ceilings
3) (Quarry tile non-glazed) or terrazzo floors

4. Boys and girls drying rooms - (150 sq. ft. each) 300 sq. ft.

b. Finishes -

1) Glazed tile walls
2) Non-glazed tile or terrazzo floors

5. Boys and girls instructor's office - (100 sq. ft. each) 200 sq. ft.

a. Fixed equipment -

1) Glass panel to observe playing area or locker room
2) Toilet and shower, storage

b. Finishes -

1) Painted block walls
2) Vinyl asphalt tile floor

c. Loose equipment -

1) Two teacher's desks and chairs
2) Two 4-drawer file cabinets

6. Physical education equipment storage rooms - (150 sq. ft. each) located adjacent to the locker rooms 300 sq. ft.

a. Fixed equipment -

Racks or shelving for storage

b. Finishes -

1) Painted block walls
2) Concrete floor

7. Gymnasium equipment storage room located adjacent to gymnasium floor — 240 sq. ft.

   b. Finishes -

      1) Painted block walls
      2) Concrete floor

8. Stage in connection with gymnasium including dressing rooms and stage equipment storage area — 1248 sq. ft.

   a. Fixed equipment -

      1) Front curtain with valance, cyclorama and two border curtains
      2) Minimum stage lighting
      3) Selective non-dimming panel board for stage and auditorium lights

   b. Finishes -

      1) Painted block walls
      2) Wood floor on stage
      3) Asphalt tile floor in the dressing room

MM. ADDITIONAL GYMNASIUM SPACE AND EQUIPMENT FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Two hundred-fifty storage lockers
2. Increase seating in gymnasium to 750

DESIRABLE FEATURES TO BE CONSIDERED FOR THE GYMNASIUM-AUDITORIUM AREA IF FUNDS ARE AVAILABLE

1. A separate auditorium to seat at least one-half of the student body (6-8 sq. ft. per seat). This feature should be given special consideration if the school program includes large group instruction. It becomes more desirable as the enrollment reaches or passes 750. The stage as shown above would be deleted from the gymnasium and, with revisions, be incorporated into the auditorium

2. One team room adjacent to boys locker room and with access to shower room 450 sq. ft.
   a. Fixed equipment -
      1) Sixty dressing lockers
      2) Two lavatories and two mirrors
   b. Finishes -

      Same as boys locker room

3. One physical activity instruction room with 18' ceiling for 750 pupil school 800 to 1500 sq. ft.
   a. Fixed equipment -
      1) Floor, wall and ceiling mountings for apparatus
      2) Windows should be limited or omitted
      3) Floor markings for instruction in activities
      4) Adequate light to avoid shadows 20 to 30-fc, 4 feet above the floor
   b. Finishes -
      1) Hardwood floors or materials of similar density
      2) Painted block walls
      3) Exposed deck ceilings

4. Sound proof folding door in lieu of dividing curtain
5. Glazed tile or epoxy painted exposed walls in the locker rooms
6. Additional tumbling and wrestling mats and other gymnastic equipment
7. Folding bleachers - seating capacity 1,000 spectators
8. Five hundred additional folding chairs
9. Additional stage lighting and dimming equipment
10. Increase the shower and locker room area by 20% for the 750 Pupil High School or Senior High School

N. VOCATIONAL AREAS

The curricular programs in these areas would be dependent upon the specific needs as determined by a survey conducted by the Division of Vocational Education of the Ohio Department of Education. Following is a list of the areas of instruction with space requirements and estimated equipment costs:

1. Where Cooperative Office Education is included in a 500 Pupil High School or Senior High School, the following room areas and equipment will be needed in addition to that listed in Section H:

   a. Additional room, storage, and office space over Section H 1400 sq. ft.
   b. Additional equipment costs estimate over Section H $ 16,000.00
   c. Consideration should be given to using the classroom space and equipment listed in a-b above with business education area for non-vocational pupils in order to make more efficient use of all space and equipment to reduce costs

2. Distributive Education for 500 Pupil High School or Senior High School

   a. The room listed under (N-1) above for Cooperative Office Education could be used for the Distributive Education class, since the room will not be needed for the full day for either the Distributive Education or Cooperative Office Education classes

   b. This room should provide special equipment for Distributive Education

3. Vocational Home Economics for 500 Pupil High School or Senior High School (separate facilities) - Generally the space and equipment provided non-vocational home economics would be sufficient for Vocational Home Economics (See HS-10 above) 2400 sq. ft.

4. Trade and Industrial Education for 500 Pupil High School or Senior High School

   a. A school of this size could offer a limited trade and industrial program of one or two trade areas (See listing under (NN-4) or a diversified co-operative training program if learning opportunities exist in local industries on a half day basis

   b. Diversified Cooperative Training Trade Areas (See listing in (NN-4) below) — 1200 sq. ft.

5. Vocational Agriculture for 500 Pupil High School or Senior High School

Office, conference and testing room	200 sq. ft.
Classroom and demonstration laboratory unit	720 sq. ft.
Farm Mechanics Shop	2380 sq. ft.

   a. Equipment cost estimate $ 18,000.00
   b. This area should be located adjacent to the Industrial Arts Area to permit joint use of some facilities

NN. ADDITIONAL SPACE AND EQUIPMENT FOR VOCATIONAL AREAS FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Cooperative Office Education

   a. Where Cooperative Office Education is included in a 750 Pupil High School or Senior High School, the following room areas and equipment will be needed in addition to that listed in Section (HH)

      1) Additional classroom, storage, and office space over Section (HH) — 2000 sq. ft.
      2) Additional equipment costs over Section (HH) $ 12,000.00
      3) Consideration should be given to using facilities in the Business Education Area for non-vocational subjects as in Section H

b. In areas where Vocational High Schools or Joint Vocational School Districts are organized, the following rooms and space will follow curricula patterns:

1)	Combination Data Processing Laboratory/Classroom	$ 40,000.00	1940 sq. ft.
2)	Typing/Shorthand Laboratory	$ 14,850.00	1440 sq. ft.
3)	Typing Machines Room	$ 28,550.00	1440 sq. ft.
4)	Typewriting Room	$ 7,425.00	900 sq. ft.
5)	General Business/Bookkeeping	$ 5,000.00	900 sq. ft.
6)	Office and Storage	$ 5,500.00	1000 sq. ft.
7)	Duplicating Room	$ 22,000.00	1440 sq. ft.
8)	Additional General Rooms needed for each unit operating		

2. Distributive Education

a. The additional room listed under Cooperative Office Education may be designed to provide for Distributive Education

b. Where a separate area is planned for Distributive Education

1)	Classroom	1200 sq. ft.
2)	Counseling office	200 sq. ft.
3)	Storage	400 sq. ft.
4)	Window display area	50 sq. ft.

This display window should be located near the classroom and approximate a typical store display window. A plate glass area of 7' x 10' with a 5' depth is suggested.

The approximate total cost of all equipment for this area is $ 7,500.00

3. Vocational Home Economics

a.	One additional room for a family living area		1200 sq. ft.
b.	Additional equipment cost estimate	$ 2,300.00	
c.	Generally this space and equipment provided non-vocational home economics would be sufficient for Vocational Home Economics		

4. Trade and Industrial Education

a. Separate facilities and equipment for one or more of the following areas:

	Area	Est. Min. Equip. Cost	Min. Space	Desirable Space
1)	Machine Trade	$ 70,000.00	3200 sq. ft.	3600 sq. ft.
2)	Auto Mechanics	8,000.00	4500 sq. ft.	6000 sq. ft.
3)	Electrical	15,000.00	2400 sq. ft.	3000 sq. ft.
4)	Drafting	5,000.00	1200 sq. ft.	1600 sq. ft.
5)	Sheet Metal and Welding	6,000.00	2400 sq. ft.	3000 sq. ft.
6)	Cosmetology	8,000.00	2000 sq. ft.	2400 sq. ft.

b. Related Space. In planning for any of the above areas, provisions should be made for use of classroom space for the related subjects. The Trade and Industry Supervisor of the Department of Education will provide specific information

c. One trade area can be established for every 300 pupils (including girls) in the upper three years of high school. Up to 22 different trade areas are offered in the public schools of Ohio. Some additional areas are: printing, dental assistant, medical assistant, refrigeration, radio and T. V. repair, commercial art, chemical assistant, cooking, power sewing machine

5. Vocational Agriculture for 750 Pupil School

Add classroom and demonstration laboratory 720 sq. ft.

O. HEATING AND MECHANICAL ROOM AREA FOR A 500 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL 750 sq. ft.

1. SIZE - Adequate to provide space and equipment needed for ultimate enrollment of building, dependent upon type of heating

a. Fixed equipment -

1) Equipment necessary to meet the needs of the present enrollment of the building (dependent upon type of heating used)
2) Self-closing fire doors to meet the Ohio Building Code
3) Automation controls of equipment limited to the essentials

b. Finishes -

Fire-proof concrete ceiling walls and floors

c. Fuel storage if needed

OO. HEATING AND MECHANICAL ROOM AREA FOR A 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL 850 sq. ft.

Equipment and finishes same as above

DESIRABLE FEATURES TO BE CONSIDERED FOR THE HEATING AND MECHANICAL ROOM AREA IF FUNDS ARE AVAILABLE

Incinerator for disposal of waste

P. CUSTODIAL FACILITIES FOR A 500 OR 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Work room and custodial storage area adjacent to the boiler room and receiving area 300 sq. ft.

b. Finishes -

1) Concrete ceiling and floor
2) Concrete block walls

c. Loose equipment -

1) One wet and dry pick-up vacuum
2) One scrubbing machine

2. Two or more small janitorial storage areas with janitor's service sink for cleaning equipment should be strategically located within the building - (30 sq. ft. each)	60 sq. ft.

DESIRABLE FEATURES TO BE CONSIDERED FOR CUSTODIAL FACILITIES IF FUNDS ARE AVAILABLE

1. Storage room at grade level for lawn and outdoor equipment	80 sq. ft.
2. Additional small storage rooms for janitorial cleaning equipment - (30 sq. ft. each)	

Q. TOILET ROOMS FOR A 500 OR 750 PUPIL HIGH SCHOOL OR SENIOR HIGH SCHOOL

1. Two boys toilets - 300 sq. ft. x 2 =	600 sq. ft.

a. Fixed equipment in (Each) -

1) Three water closets - wall hung. Stalls without doors
2) Eight urinals - wall hung
3) Two lavatories with soap dispenser
4) Two mirrors

b. Finishes -

1) Keenes cement plaster ceilings
2) Epoxy painted block or glazed tile walls
3) Terrazzo floors

2. Two girls toilets - 300 sq. ft. x 2 =	600 sq. ft.

a. Fixed equipment in (Each) -

1) Seven water closets - wall hung. Stalls with doors
2) Two lavatories
3) Two mirrors

b. Finishes -

Same as boys toilets

3. One faculty mens toilet adjacent to the faculty room	24 sq. ft.

a. Fixed equipment -

1) One water closet
2) One urinal
3) One lavatory
4) One mirror

b. Finishes -

1) Plaster ceiling
2) Epoxy painted or glazed tile walls
3) Vinyl or ceramic tile floor

4. One faculty womens toilet adjacent to the faculty room	45 sq. ft.

a. Fixed equipment -

1) Two water closets
2) One lavatory
3) One mirror

b. Finishes -

Same as mens toilets

DESIRABLE FEATURES TO BE CONSIDERED FOR THE TOILET ROOMS IF FUNDS ARE AVAILABLE

1. One toilet located within the administration area. Entrance from corridor or double doors should be provided	30 sq. ft.

R. CORRIDORS AND ENTRANCE WAYS

500 pupil buildings - 9 foot width = approximately	3800 sq. ft.
750 pupil buildings - 10 foot width = approximately	4200 sq. ft.

a. Fixed equipment -

1) Twelve inch clothing locker for each two pupils
2) Limited display cases

b. Finishes -

1) Acoustical ceilings
2) Epoxy painted block or glazed tile exposed walls
3) Vinyl asphalt tile floors

DESIRABLE FEATURES TO BE CONSIDERED FOR CORRIDORS AND ENTRANCE WAYS IF FUNDS ARE AVAILABLE

1. Terrazzo floors
2. Some decorative walls at the main entrance
3. Additional display cases at strategic points

S. MAIN DRIVEWAYS AND WALKS

1. Main driveway to bus loading entrances

   a. Driveway sufficiently wide for two buses to pass unless a one-way loop
   b. Driveway and parking area should provide space so that school buses can be turned around without the necessity of backing the school bus on the school grounds
   c. Driveway and bus loading area should be constructed of 8" of crushed stone and 3" of blacktop coating
   d. Parking lot space should be provided for 200 cars
   e. Parking area should be constructed with a minimum of 8" of crushed stone
   f. Driveway should extend to the receiving area for janitorial supplies, kitchen and shop

2. Walkways

   a. Eight foot concrete walks should lead from the bus loading area to the main entrance
   b. Six foot concrete walks should lead from the driveway or parking lot to all entrances

DESIRABLE FEATURES TO BE CONSIDERED FOR DRIVEWAYS AND WALKS IF FUNDS ARE AVAILABLE

1. Covered walkway for bus loading area
2. Blacktop parking lot
3. Additional blacktop outdoor playing space (1,000 to 2,000 sq. ft.)
4. Parking for 500 cars

T. ELECTRICAL EQUIPMENT

1. P. A. system for administrative and instructional purposes

    a. Console with selective switches in administrative or speech instruction area
    b. Two-way speakers in each teaching station
    c. Conduit large enough to carry television wiring in addition to other wiring

2. Electrical clock and program system

    a. Master clock in administrative area
    b. Clock with program signal in each teaching station and boiler room
    c. Clock in each main corridor
    d. Playground program signal bell or horn outdoors

3. Electrical fire alarm system to meet requirements of the Ohio Building Code

DESIRABLE FEATURES TO BE CONSIDERED FOR ELECTRICAL ITEMS IF FUNDS ARE AVAILABLE

1. Television antenna and receivers
2. Am and Fm radios and record players in P. A. console
3. Remote control unit microphone and amplifier for P. A. system in (a) music room, (b) auditorium-gymnasium

CHAPTER VII

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION

Prepared by the ARCHITECTS SOCIETY OF OHIO - 1/1/64

The estimated cost factors listed in the following tables are based on the actual construction costs of school buildings constructed in Ohio during 1963.

The estimated cost factors represent the complete cost of the school facility including construction costs, all fixed equipment costs, all loose equipment costs, architectural fees, and miscellaneous fees.

The estimated cost factors do not include the cost of the purchase of the site, the cost of developing a sewage disposal system, the cost of developing a water supply, or the cost of the extension of utilities to the building site.

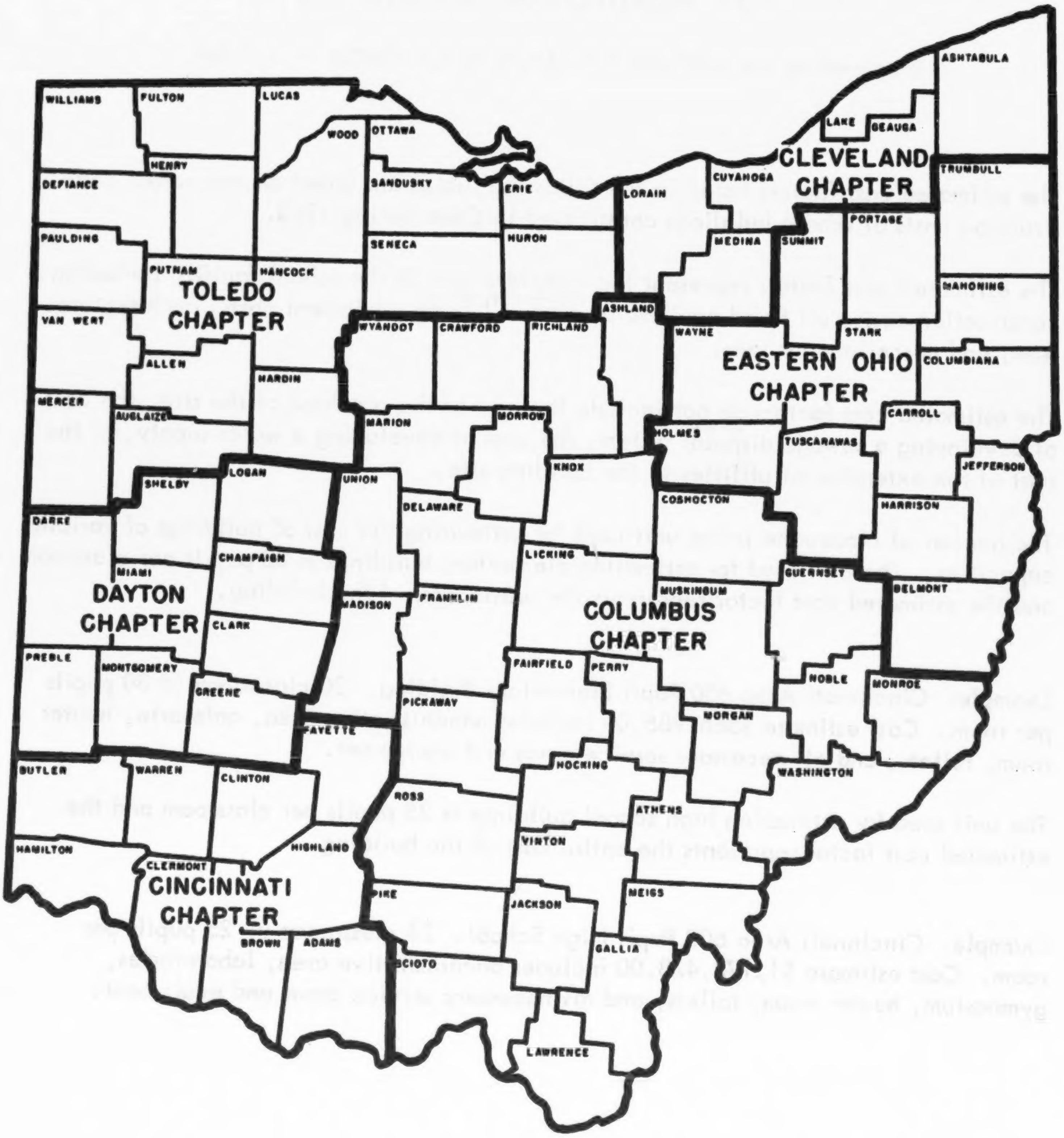
The number of classrooms is the unit used for estimating the cost of buildings of various capacities. The unit used for estimating elementary buildings is 30 pupils per classroom and the estimated cost factor represents the entire cost of the building.

Example: Cincinnati Area 600 Pupil Elementary Building. 20 classrooms @ 30 pupils per room. Cost estimate $586,985.00 includes administrative area, cafeteria, heater room, toilets, and all necessary service areas and equipment.

The unit used for estimating high school buildings is 25 pupils per classroom and the estimated cost factor represents the entire cost of the building.

Example: Cincinnati Area 600 Pupil High School. 24 classrooms @ 25 pupils per room. Cost estimate $1,172,428.00 includes administrative area, laboratories, gymnasium, heater room, toilets, and all necessary service areas and equipment.

THE SIX CHAPTER REGIONS
OF THE ARCHITECTS SOCIETY OF OHIO


ASHTABULA
WILLIAMS
FULTON
LUCAS
WOOD
OTTAWA
LAKE
GEAUGA
CLEVELAND CHAPTER
CUYAHOGA
TRUMBULL
HENRY
DEFIANCE
SANDUSKY
ERIE
LORAIN
PORTAGE
PAULDING
SENECA
HURON
MEDINA
SUMMIT
PUTNAM
HANCOCK
TOLEDO CHAPTER
MAHONING
ASHLAND
VAN WERT
WYANDOT
CRAWFORD
RICHLAND
WAYNE
STARK
ALLEN
EASTERN OHIO CHAPTER
COLUMBIANA
HARDIN
MERCER
AUGLAIZE
MARION
MORROW
CARROLL
HOLMES
TUSCARAWAS
JEFFERSON
SHELBY
LOGAN
UNION
KNOX
DELAWARE
COSHOCTON
HARRISON
DARKE
CHAMPAIGN
LICKING
MIAMI
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BELMONT
DAYTON CHAPTER
MADISON
FRANKLIN
MUSKINGUM
COLUMBUS CHAPTER
CLARK
PREBLE
MONTGOMERY
FAIRFIELD
PERRY
GREENE
NOBLE
MONROE
PICKAWAY
FAYETTE
MORGAN
BUTLER
WARREN
CLINTON
HOCKING
WASHINGTON
ROSS
ATHENS
HAMILTON
HIGHLAND
VINTON
CLERMONT
CINCINNATI CHAPTER
PIKE
MEIGS
JACKSON
BROWN
ADAMS
GALLIA
SCIOTO
LAWRENCE

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Cincinnati Region

Number of Classrooms	Elementary Schools			High Schools	
	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 16,705	$	$ 25,247	$ 22,748	$
2	33,410		50,494	45,496	
3	50,115		75,741	68,244	
4	66,820			90,992	
5	83,525	228,701		113,740	
6	100,230	245,406		136,488	
7	116,935	262,111		159,236	
8	133,640	278,816		181,984	
9		375,554			609,907
10		392,269			632,655
11		408,964			655,403
12		425,669			678,151
13		442,374			700,899
14		459,079			723,647
15		503,460			784,975
16		520,165			807,723
17		536,870			830,471
18		553,575			879,322
19		570,280			928,173
20		586,985			977,024
21		603,690			1,025,875
22		620,395			1,074,726
23		637,100			1,123,577
24		653,805			1,172,428
25		670,510			1,221,279
26		687,265			1,270,130
27		704,970			1,318,981
28		721,675			1,367,832
29		738,380			1,416,683
30		755,085			1,465,534

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Cleveland Region

Number of Classrooms	Elementary Schools			High Schools	
	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 19,210	$	$ 29,035	$ 26,428	$
2	38,420		58,070	52,856	
3	57,630		87,105	79,284	
4	76,840			105,712	
5	96,050	236,803		132,140	
6	115,260	256,013		158,568	
7	134,470	275,223		184,996	
8	153,680	294,433		211,424	
9		387,032			634,611
10		406,242			661,039
11		425,452			687,467
12		444,662			713,895
13		463,872			740,323
14		483,082			776,751
15		520,776			821,668
16		539,986			848,096
17		559,196			874,524
18		578,406			925,966
19		597,616			977,408
20		616,826			1,028,850
21		636,036			1,080,292
22		655,246			1,131,734
23		674,456			1,183,176
24		693,666			1,234,618
25		712,876			1,286,060
26		732,086			1,337,502
27		751,296			1,388,944
28		770,506			1,440,386
29		789,716			1,491,828
30		801,926			1,543,270

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Columbus Region

Number of Classrooms	Elementary Schools			High Schools	
	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 14,770	$	$ 23,321	$ 19,925	$
2	29,540		46,642	39,850	
3	44,310		69,963	59,775	
4	59,080			79,700	
5	73,850	197,724		99,625	
6	88,620	212,494		119,550	
7	103,390	227,264		139,475	
8	118,160	242,034		159,400	
9		322,702			636,695
10		337,472			656,620
11		352,242			676,545
12		367,012			696,470
13		381,782			716,395
14		396,552			736,320
15		432,629			813,230
16		447,399			833,155
17		462,169			853,080
18		476,939			903,263
19		491,709			953,445
20		506,479			1,003,627
21		521,249			1,053,809
22		536,019			1,103,991
23		550,789			1,154,173
24		569,559			1,204,355
25		580,329			1,254,537
26		596,000			1,304,690
27		609,870			1,354,870
28		624,640			1,405,055
29		639,410			1,455,235
30		654,180			1,505,430

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Dayton Region

Number of Classrooms	Elementary Schools			High Schools	
	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 14,747	$	$ 22,285	$ 19,905	$
2	29,494		44,570	39,810	
3	44,241		66,855	59,715	
4	58,988			79,620	
5	73,735	212,132		99,525	
6	88,482	226,879		119,430	
7	103,229	241,626		139,335	
8	117,976	256,373		159,240	
9		348,558			654,669
10		363,305			674,574
11		378,052			694,479
12		392,799			714,384
13		407,546			734,289
14		422,293			754,194
15		466,390			835,379
16		481,137			855,284
17		495,884			875,189
18		510,631			926,670
19		525,378			978,151
20		540,125			1,029,632
21		554,872			1,081,113
22		569,619			1,132,594
23		584,366			1,184,075
24		599,113			1,235,556
25		613,860			1,287,037
26		628,505			1,338,520
27		643,245			1,390,000
28		657,980			1,441,480
29		672,720			1,492,960
30		687,455			1,544,440

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Eastern Ohio Region

	Elementary Schools			High Schools	
Number of Classrooms	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 14,257	$	$ 21,546	$ 19,174	$
2	28,514		43,092	38,348	
3	42,771		64,638	57,522	
4	57,028			76,696	
5	71,285	203,133		95,870	
6	85,542	217,390		115,044	
7	99,799	231,647		134,218	
8	114,056	245,904		153,392	
9		332,984			590,912
10		347,241			610,086
11		361,498			629,260
12		375,755			648,434
13		390,012			667,608
14		404,269			686,782
15		445,595			755,556
16		459,852			774,730
17		474,109			793,904
18		488,366			840,604
19		502,623			887,304
20		516,880			934,004
21		531,137			980,704
22		545,394			1,027,404
23		559,651			1,074,104
24		573,908			1,120,804
25		588,165			1,167,504
26		602,420			1,214,204
27		616,690			1,260,905
28		630,945			1,307,605
29		645,205			1,354,305
30		659,460			1,401,005

COST FACTORS FOR NEW SCHOOLS AND ADDITIONS BY ARCHITECTURAL REGION, 1963-1964

Toledo Region

Number of Classrooms	Elementary Schools			High Schools	
	Additions Less Kindergarten	Separate Schools Less Kindergarten	Kindergarten	Additions	Separate Schools
1	$ 16,585	$	$ 25,064	$ 22,556	$
2	33,170		50,128	45,112	
3	49,755		75,192	67,668	
4	66,340			90,224	
5	82,925	218,268		112,780	
6	99,510	234,853		135,336	
7	116,095	251,438		157,892	
8	132,680	268,023		180,448	
9		356,968			665,033
10		373,553			687,589
11		390,138			710,145
12		406,723			732,701
13		423,308			755,257
14		439,893			777,813
15		479,035			852,517
16		495,620			875,073
17		512,205			897,629
18		528,790			950,431
19		545,375			1,003,233
20		561,960			1,056,035
21		578,545			1,108,837
22		595,130			1,161,639
23		611,715			1,214,441
24		628,300			1,267,343
25		644,885			1,320,045
26		661,470			1,342,845
27		678,055			1,395,650
28		694,640			1,448,450
29		711,225			1,501,255
30		727,810			1,554,055

COST FACTORS FOR SPECIAL FACILITIES WHEN CONSTRUCTED AS ADDITIONS TO EXISTING BUILDINGS

1. Maximum allowable construction costs for gymnasiums, auditoriums, and multi-purpose rooms:

a.	Gymnasium (secondary or combination only)	$ 222,000
b.	Auditorium (secondary or combination only)	222,000
c.	Combination gymnasium and auditorium (secondary or combination only)	254,800
d.	Multi-purpose room (elementary only)	112,500

2. Site and site improvement costs

   For new schools, use figures as shown; if none shown, use following costs:

a.	Elementary	23,400
b.	Combination, junior high and high schools	48,000

3. If high school additions are detailed specifically as including any of the special rooms shown below, add the cost factors shown to construction costs:

a.	General Science Room	7,800 per room
b.	Physics-Chemistry Laboratory	13,200 per room
c.	Home Economics Room	15,000 per room

4. For new schools in rural areas only, add the following costs if these facilities are known to be needed and not provided for in cost estimates:

a.	Private sewage disposal system	21,000
b.	Private water system	4,800

5.	For the addition of a kitchen only to an existing elementary school, cost is:	$ 32,600
6.	For the addition of an Industrial Arts Shop and Vocational Agriculture Shop only, use the following costs:	
	a. Industrial Arts Shop	63,800
	b. Vocational Agriculture Shop	50,600
7.	For Music Department:	
	a. 500 Pupil Junior High - 3200 square feet	51,000
	b. 750 Pupil Junior High - 3400 square feet	54,500
	c. 500 Pupil High School - 3680 square feet	62,500
	d. 750 Pupil High School - 5280 square feet	89,800